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NEWS 2 "Ask CAS" for self-help around the clock

NEWS 3 IPC search and display fields enhanced in CA/CAPLUS with the

NEWS 4 IPC reform

NEWS 5 DEC 23 New IPC8 SEARCH, DISPLAY, and SELECT fields in USPTFULL/

NEWS 6 JAN 13 USPTA2

NEWS 7 JAN 13 IPC 8 searching in IFTPAT, IFTUBD, and IFTICB

NEWS 8 JAN 13 New IPC 8 SEARCH, DISPLAY, and SELECT enhancements added to

NEWS 9 JAN 17 INPADOC

NEWS 10 Pre-1988 INPI data added to MARPAT

NEWS 11 JAN 17 IPC 8 in the WPI family of databases including WPIFV

NEWS 12 JAN 30 Saved answer limit increased

NEWS 13 JAN 31 Monthly current-awareness alert (SDI) frequency

NEWS 14 FEB 21 added to TULSA

NEWS 15 FEB 21 STN Analyst, Version 1.1, lets you share your STN Analyst

NEWS 16 FEB 22 visualization results

NEWS 17 FEB 22 Status of current WO (PCT) information on STN

NEWS 18 FEB 22 The IPC thesaurus added to additional patent databases on STN

NEWS 19 FEB 22 Updates in EPULF; IPC 8 enhancements added

NEWS 20 FEB 27 New STN Analyst pricing effective March 1, 2006

NEWS 21 MEDLINE/MEDLINE reload improves functionality

NEWS 22 FEB 28 TOCENTER reload with enhancements

NEWS 23 FEB 28 REGISTRY/REGISTRY enhanced with more experimental spectral

NEWS 24 property data

NEWS 25 MAR 01 INSPEC reload and enhanced

NEWS 26 MAR 03 Updates in PARDPA; addition of IPC 8 data without attributes

NEWS 27 MAR 08 X.25 communication option no longer available after June 2006

NEWS 28 MAR 22 EMASE is now updated on a daily basis

NEWS 29 APR 03 New IPC 8 fields and IPC thesaurus added to PATPAPUL

NEWS 30 APR 03 Bibliographic data updates resume; new IPC 8 fields and IPC

NEWS 31 APR 04 thesaurus added in PCTFUL

NEWS 32 APR 04 STN Analyst \$500 visualization usage credit offered

NEWS 33 APR 04 FEBRUARY 15 CURRENT VERSION FOR WINDOWS IS V8.01a,

NEWS 34 CURRENT MACINTOSH VERSION IS V6.0C(BNG) AND V6.0C(UP),

NEWS 35 AND CURRENT DISCOVER FILE IS DATED 19 DECEMBER 2005.

NEWS 36 V8.0 AND V8.01 USERS CAN OBTAIN THE UPGRADE TO V8.01a AT

NEWS 37 <http://download.cas.org/express/v8.0-discover/>

NEWS 38 NEWS HOURS STN Operating Hours Plus Help Desk Availability

NEWS 39 NEWS LOGIN Welcome Banner and News Items

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NEWS 41 specific topic.

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FILE 'HOME' ENTERED AT 09:34:22 ON 10 APR 2006

=> FILE REG

COST IN U.S. DOLLARS

FULL ESTIMATED COST

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STRUCTURE FILE UPDATES: 7 APR 2006 HIGHEST RN 879722-24-4

DICTIONARY FILE UPDATES: 7 APR 2006 HIGHEST RN 879722-24-4

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TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when

conducting SmartSELECT searches.

The CA roles and document type information have been removed from

the IDE default display format and the ED field has been added,

effective March 20, 2005. A new display format, IDERL, is now

available and contains the CA role and document type information.

Structure search iteration limits have been increased. See HELP LIMITS

for details.

REGISTRY includes numerically searchable data for experimental and

predicted properties as well as tags indicating availability of

experimental property data in the original document. For information

on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> S TEDA/CN

L1 TEDA/CN

=> D

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2006 ACS on STN

RN 280-57-9 REGISTRY

ED Entered STN: 16 Nov 1984

CN 1,4-diazabicyclo[2.2.2]octane (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN 1,4-Ethylenebipiperazine

CN A 33

CN Bicyclo[2.2.2]-1,4-diazaoctane

CN D 33IV

CN Dabco

CN Dabco 33IV

CN Dabco 33IV

CN Dabco 33IV

CN Dabco 33IV

CN Dabco 33IV

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CN Dabco 33IV

CN Dabco 33IV

16/829,176 - STN SEARCH TRANSCRIPT

CN Dabco Crystalline
 CN Dabco L 1202
 CN Dabco S 25
 CN Jeffcat TD 100
 CN L 33
 CN L 33E
 CN LC 96003
 CN Minico L 1020
 CN N,N'-endo-ethylenepiperazine
 CN Nix A 33
 CN NSC 56362
 CN PC CAT TD 33
 CN Polycat 33LV
 CN TD 100
 CN TED
 CN TEDA
 CN Teda L 33
 CN Tegamine 33
 CN Tego Amine
 CN Texacat TD 100
 CN Texacat TD 33
 CN Thancat TD 33A
 CN Total SM 2
 CN Toyocat L 33
 CN Toyocat TEDA L 33
 CN Triethylenediamine
 CN 3D CONCORD
 CN 23790-33-2, 101484-19-9, 150605-01-9, 88935-43-7, 203072-11-1, 309955-09-7
 CN C6 H12 N2
 CN COM, RPS
 CN CI
 CN STN Files: ANBSR, AQUIRE, BEILSTEIN, BIOSIS, BIOTECNO, CA, CROLD, CAPUS, CASREACT, CAME, CHECATS, CHEMINFORAK, CHEMLIST, CIN, CSCHM, CSNB, DETHEN, DIPER, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPAR, ENCOMPAR2, GELIN, HSDB, IFCDB, IFIPAT, IFIDUB, MEDLINE, MRCR, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS, SPECINFO, SYNTHLINE, TOXCENTER, ULIDAT, USPAT2, USPATFUL, VTB
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST file for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

5372 REFERENCES IN FILE CA (1907 TO DATE)
 253 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 5385 REFERENCES IN FILE CAPUS (1907 TO DATE)
 107 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> FILE CAPUS
 COST IN U.S. DOLLARS
 FULL ESTIMATED COST
 SINCE FILE ENTRY 7.10
 TOTAL SESSION 7.31
 FILE 'CAPUS' ENTERED AT 09:34:41 ON 10 APR 2006
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FILE COVERS 1907 - 10 Apr 2006 VOL 144 ISS 16
 FILE LAST UPDATED: 9 Apr 2006 (20060409/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

<http://www.cas.org/infopolicy.html>

=> S L1
 L2 5385 I1

=> S L2 AND DIVIDING WALL
 22169 DIVIDING
 22 DIVIDINGS
 22189 DIVIDING
 (DIVIDING OR DIVIDINGS)

280725 WALL
 127969 WALLS
 363351 WALL
 (WALL OR WALLS)
 319 DIVIDING WALL
 (DIVIDING(W)WALL)
 L3 0 L2 AND DIVIDING WALL

=> S L2 AND COLUMN AND WALL
 395941 COLUMN
 102772 COLUMN
 446424 COLUMN
 (COLUMN OR COLUMNS)
 280725 WALL
 127969 WALLS
 363351 WALL
 (WALL OR WALLS)
 L4 1 L2 AND COLUMN AND WALL

=> D
 L4 ANSWER 1 OF 1 CAPUS COPYRIGHT 2006 ACS ON STN
 AN 2002:286003 CAPUS
 DN 136:310883
 TI Manufacture of foamed polyurethane rolls without entrapping air and electrophotographic apparatus assembled with the same
 IN Fukuda, Hiroya; Satoyoshi, Minoru; Takahashi, Wataru
 PA Bridgestone Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 9 PP.
 DT Patent
 LA Japanese
 FAN.CNT 1
 PATENT NO. KIND DATE APPLICATION NO. DATE

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

to give a residue. The residue was heated with DBU, DMAP, and 5-chlorothiophene-2-sulfonamide in pyridine at 115° for 23 h to give 5-chloro-2-(4-[[[5-chlorothiophen-2-yl)sulfonyl]amino](cyanomino)m ethyl]amino)-2-methylphenyl]benzo[c]saxoline-1,3-dione.

REFERENCE COUNT: 8

THERE ARE 8 CITED REFERENCES AVAILABLE IN THE RE FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:105018 CAPLUS
DOCUMENT NUMBER: 132:163120
TITLE: Extrusion foam body efficient in biological water treatment

INVENTOR(S): Arai, Takashi; Negishi, Minoru
PATENT ASSIGNEE(S): Dainichi Can Co., Ltd., Japan
Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKKXAF
Patent

DOCUMENT TYPE: Japanese
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000041669	A2	20000215	JP 1998-246466	19980729
PRIORITY APPL. INFO.:			JP 1998-246466	19980729

AB An efficient, durable and economical extrusion molding foam body is provided for the use in biol. water treatment as microorganism-immobilizing carrier. The foam body is formed in a cylinder shape by the extrusion molding of plastics (e.g., polyolefin resin) so that it is possessed with a large surface area and a structural breaking strength comparable to the case of the small cylindrical outer diameter in addition to advantages of the large cylindrical outer diameter. The cylindrical extrusion foam body is equipped with the multiple **dividing walls** extending in a radial fashion toward the outer wall from the point around the cross-section center. Each part of the extrusion foam body, i.e., outer wall and **dividing walls**, is rough on its surface. Continuous foam or penetrating foam is formed inside the walls.

=> S L6 NOT L7
L8 41 L6 NOT L7

=> D 1-41 IBIB ABS

L8 ANSWER 1 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2006:168163 CAPLUS
DOCUMENT NUMBER: 144:234987
TITLE: Method for separation of pure trioxane by distillation

INVENTOR(S): Siegett, Markus; Lang, Neven; Stroeder, Eckhard;
Stammer, Achim; Fries, Thorsten
PATENT ASSIGNEE(S): Basf Aktiengesellschaft, Germany
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006018302	A1	20060223	WO 2005-EP8944	20050818
W: AE, AG, AT, AU, AZ, BA, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,				

GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TD, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZW, ZW

RM: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TD, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZW, ZW

KG, KZ, MD, RU, TJ, TM

DE 102004040284 A1 20060223 DE 2004-102004040284 20040819

PRIORITY APPL. INFO.:

AB The invention relates to a method for separation by distillation of pure trioxane from a supply flow containing at least 50% of trioxane, formaldehyde, water, and other components. The supply flow and another flow which contains water but does not contain any constituents foreign to the supply flow are supplied to a **dividing wall** column comprising an essentially perpendicular **dividing wall** which divides the inside of the column into a supply region, a delivery region, an upper common column region, and a lower common column region. A bottom flow containing pure trioxane and a lateral flow containing pure water are removed from the delivery region of the first **dividing wall** column.

REFERENCE COUNT: 7

THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 2 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:1105685 CAPLUS
DOCUMENT NUMBER: 2004:1105685 CAPLUS

INVENTOR(S): Lee, Gi Pung; Park, Seok Ho
PATENT ASSIGNEE(S): Doosan Heavy Industries & Construction Co., Ltd., S. Korea
SOURCE: Repub. Korean Kongkae Taeho Kongbo, No pp. given
DOCUMENT TYPE: Patent
LANGUAGE: Korean
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
KR 2001037287	A	20010507	KR 1999-44708	19991015
PRIORITY APPL. INFO.:			KR 1999-44708	19991015

AB **PURPOSE:** An industrial waste incinerator prevents residue formed after the primary combustion from flowing into a waste heat boiler to prevent performance and efficiency of the waste heat boiler from falling. **CONSTITUTION:** A **dividing wall** (120) is installed on the inlet side of a secondary combustion incinerator (14) to prevent fly ash which is burned residue generated in a rotary kiln (12) from flowing into the side of the secondary combustion incinerator (14). The **dividing wall** (120) preferably block two thirds of the inlet of the secondary combustion incinerator (14) so that incineration gas flows into the secondary combustion incinerator smoothly and fly ash is blocked.

L8 ANSWER 3 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:348010 CAPLUS
DOCUMENT NUMBER: 140:357850
TITLE: Process for the purification of toluenediisocyanate using a **dividing wall** distillation column for the final purification

INVENTOR(S): Gruen, Marcus Paul; Brady, Bill, Jr.; Kegeleshoff, Berthold; Verkerk, Kai; Schel, Hans-Peter

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004084502	A2	20040318	JP 2002-244012	20020823
PRIORITY APPLN. INFO.:			JP 2002-244012	20020823
AB	The filter includes a plurality of gas passages with one of the ends sealed, dividing walls with waste gas-passable microcores formed on the surface and inside, NOx occlusion catalyst loaded in the microcores, and SOx trapping catalyst loaded on the side surface of the walls dividing the passages with only downstream ends sealed and the opposite surface of the walls dividing the passages with only upper stream ends sealed.			
L8	ANSWER 5 OF 41	CAPLUS	COPYRIGHT 2006 ACS on STN	
ACCESSION NUMBER:		2004:00668	CAPLUS	
DOCUMENT NUMBER:		140:146648		
TITLE:		Continuous	purification by distillation of	

L8	ANSWER 6 OF 41	CAPLUS	COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:		2004-80667	CAPLUS
DOCUMENT NUMBER:		140-146647	
TITLE:		Continuous <u>purification</u> by distillation of the solvent methanol used in the manufacture of propylene oxide	
INVENTOR(S):		Basler, Peter; Goebel, Hans-Georg; Teles, Joaquim Henrique; Rudolf, Peter	
PATENT ASSIGNEE(S):		Bast Aktiengesellschaft, Germany	
SOURCE:		PCT Int. Appl., 35 pp.	
DOCUMENT TYPE:		CODEN: PIXXD2	
LANGUAGE:		Patent	
FAMILY ACC. NUM. COUNT:		German	
PATENT INFORMATION:		1	

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MN, MP, MX, MY, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SI, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RM: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, GM, HT, IL, IN, IS, JP, KE, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MN, MP, MX, MY, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SI, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

DE 10233388 A1 20040212 DE 2002-10233388 20020723
CA 2493271 AA 20040129 CA 2003-2493271 20030722
AU 2003251441 A1 20040209 AU 2003-251441 20030722
EP 1527055 A1 20050504 EP 2003-765085 20030722
EP 1527055 B1 20060308

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, CN 1678599 A 20051005 CN 2003-820005 20030722
US 2005258026 A1 20051124 US 2005-521784 20050121
DE 2002-10233388 A 20020723
MO 2003-EP7986 W 20030722

PRIORITY APPL. INFO.:
MeOH used as solvent in the manufacture of propylene oxide by oxidation of propylene with H₂O₂ is purified by distillation with simultaneous separation and isolation of methoxypropyl isomers. The solvent mixture that accumulates during the manufacture is separated in a dividing wall column into a low-boiler fraction containing MeOH, a medium-boiler fraction containing the methoxypropyls as an azeotropic mixture with H₂O and a high-boiler fraction containing H₂O and propylene glycol.

REFERENCE COUNT: 4
THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 7 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:1064 CAPLUS
DOCUMENT NUMBER: 140:43914
TITLE: Distillation column internals/configurations for process intensification
AUTHOR(S): Olujic, Z.; Kaibel, B.; Jansen, H.; Rietfort, T.; Zich, E.; Frey, G.
CORPORATE SOURCE: Laboratory for Process Equipment, TU Delft, Delft, NL-2628, Neth
SOURCE: Chemical and Biochemical Engineering Quarterly (2003), 17(4), 301-309
CODEN: CBEQEZ; ISSN: 0352-9568
PUBLISHER: Croatian Society of Chemical Engineers
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review. The purpose of this paper is to introduce some recently commercialised packed column internals and configurations developed at J. Montz company in close cooperation with universities and industry, which by the virtue of their nature intensify in some way the distillation process. These include state of the art high capacity structured packings, hybrid packed beds with partially flooded sections, streamlined liquid collectors, catalytic packings and the dividing wall column (DWC). The latter one, an exclusive development realized in a close cooperation with BASF company, represents a major technol. breakthrough; recent advances being mainly reflected in increasing both mech. and process design flexibility by introducing a number of proprietary designs of DWC components. This paper discusses the backgrounds of developed technologies, the related state of the art and the perspectives for further development.

REFERENCE COUNT: 37
THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 8 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:985771 CAPLUS
DOCUMENT NUMBER: 140:28151

TITLE: Process for the purification of mixtures of toluene diisocyanate incorporating a dividing wall distillation column
INVENTOR(S): Brady, Bill; Steffens, Friedrich; Kegenhoff, Berthold; Verkerk, Kai; Ruffert, Gerhard
PATEM ASSIGNEE(S): Bayer A.-G., Germany
SOURCE: Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1371633	A1	20031217	EP 2002-13460	20020614
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
EP 1371635	A1	20031217	EP 2003-12498	20030602
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CA 2431439	AA	20031214	CA 2003-2431439	20030609
US 2003230476	A	20031218	US 2003-457307	20030609
CN 1467202	A1	20040114	CN 2003-141072	20030613
JP 2004155760	A2	20040603	JP 2003-168858	20030613
BR 2003002097	A	20040908	BR 2003-2097	20030613
PRIORITY APPL. INFO.: A process for the purification of toluene diisocyanate (TDI), from a crude distillation feed comprising >24 phosgene, by separating the crude distillation feed in a dividing wall distillation column into four product fractions (1.e., P1-P4): P1 is a phosgene-enriched, low-boiler product; P2 is a solvent-enriched product; P3 is a high-boiler-enriched bottoms fraction; and P4 is a TDI product stream. Apparatus and process flow diagrams are presented.				

REFERENCE COUNT: 4
THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 9 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:72693 CAPLUS
DOCUMENT NUMBER: 140:43914
TITLE: Fuel injector
INVENTOR(S): Kelsall, Gregory John; Senior, Peter
PATEM ASSIGNEE(S): Alstom (Switzerland) Ltd., Switz.
SOURCE: Eur. Pat. Appl.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1243854	A1	20020925	EP 2002-251528	20020305
EP 1243854	B1	20050720		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRIORITY APPL. INFO.: A fuel injector (1) for a combustor of a gas turbine engine operable on first (G) and second (L) fluid fuels, in which fuel orifices (4a, 4b) for injecting the first fuel into the combustor are exposed to combustion products during operation of the engine on the second fuel. A downstream portion of a fuel manifold (3) is divided into a radially outer annular fuel supply passage (8) for supplying a radially outer set (4a) of the fuel orifices and a radially inner annular fuel supply passage (9) for supplying a radially inner set (4b) of the fuel orifices. There is also				

an annular air passage (11) for admission of compressed air into the combustor, this passage being defined between an external wall (13) of the fuel manifold and an outer shroud member (10) surrounding the fuel injector. Disposed upstream of the dividing wall (7) is a first set of air purge holes (14) provided in the external manifold wall (13) to permit fluid connection between the air passage (11) and the annular fuel manifold (3). A second set of air purge holes (15) is provided in the external manifold wall (13) downstream of the first set of purge holes (14) to permit direct fluid connection between the air passage (11) and the radially outer annular fuel supply passage (8). In this way, pressure in both the radially inner (9) and radially outer (8) annular fuel supply passages is maintained greater than that in the combustion zone (2) during operation of the engine on the second fuel, so preventing ingress of hot combustion products through both the radially inner and outer sets of fuel orifices.

REFERENCE COUNT: 5
THERE ARE 5 CITED REFERENCES AVAILABLE IN THE RE FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

18 ANSWER 10 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 2002:688448 CAPLUS
DOCUMENT NUMBER: 137:206132
TITLE: Fish pond filter system
INVENTOR(S): James, Ron
PATENT ASSIGNEE(S): USA
SOURCE: U.S., 16 pp.
CODEN: USXXAM
LANGUAGE: Patent
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION: English

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6447675	B1	20020910	US 2000-652228	20000829
US 2003006178	A1	20030109	US 2002-242059	20020910
US 6709574	B2	20040323		
US 6685826	B1	20040203	US 2003-338935	20030107
			US 2000-652228	A1 20000829
			US 2002-242059	A1 20020910

PRIORITY APPL. INFO.:
US 2002-242059
A1 20020910

AB A system for filtering and treating waste generated or collected in the water of a fish pond is described. The system includes a pump, pre-filter, piping, a valve assembly, and a filter media container enclosing a plurality of discrete filter media. The filter media are generally hollow, plastic structures with a plurality of external ribs and internal dividing walls. The filter media has a high surface area-to-volume ratio and can support a high volumetric d. of naturally occurring heterotrophic bacteria. The heterotrophic bacteria establish colonies on the internal and external surfaces of the filter media and biol. metabolize waste that is trapped on the media. The bacterial metabolism transforms much of the waste to an aesthetically and biol. neutral form thereby reducing the need for chemical treatment of the pond water. The system includes a backwashing mode to agitate and remove untrapped waste from the system and direct the waste stream out of the system, preferably to be used as fertilizer.

REFERENCE COUNT: 16
THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

18 ANSWER 11 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 2001:566696 CAPLUS
DOCUMENT NUMBER: 135:19369
TITLE: Purification of ammonia by distillation
INVENTOR(S): Mostbrock, Karl-Heinz; Kalbel, Gerd; Tirauc, Christian; Anken, Gabriele
PATENT ASSIGNEE(S): Basf Aktiengesellschaft, Germany
SOURCE: U.S. Pat. Appl. Publ., 9 pp.

DOCUMENT TYPE: CODEN: USXXCO
LANGUAGE: Patent
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION: English

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2001010286	A1	20010802	US 2001-767820	20010124
US 7001490	B2	20060221		
DE 10004311	A1	20010802	DE 2000-10004311	20000201
JP 2001348222	A2	20011216	JP 2001-19340	20010129
EP 1122213	A1	20010808	EP 2001-102139	20010201
EP 1122213	B1	20040102		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 257125	E	20040115	AT 2001-102139	20010201
ES 2214352	T3	20040916	ES 2001-1102139	20010201
PRIORITY APPL. INFO.: DE 2000-10004311 A 20000201				

AB Crude ammonia (purity of 95.0-99.9 weight%, preferably 99.0-99.7%) is separated into a low boiler fraction, a high boiler fraction, and an intermediate-boiling pure fraction (purity of 299.99 weight%, preferably 299.999%) by continuous fractional distillation in a distillation apparatus configured either as a dividing-wall column or as a system of thermally coupled distillation columns. The low boiler fraction is taken off at the top of the distillation apparatus

The intermediate-boiling pure fraction is obtained at a side off-take which is preferably provided with droplet precipitators. In addition, the gas loading of the distillation column is restricted so that the operating pressure is 2-30 bar and the F factor is 52.0 Pa0.5. The purified NH3 is suitable for manufacture of food and semiconductors.

REFERENCE COUNT: 12
THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

18 ANSWER 12 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 1998:369962 CAPLUS
DOCUMENT NUMBER: 129:69475
TITLE: Study on plasma enhanced CVD coated material to promote dropwise condensation of steam

AUTHOR(S): Koch, G.; Zhang, D. C.; Lebertz, A.; Grischke, M.; Trojan, K.; Dimigen, H.
CORPORATE SOURCE: Lehrstuhl für Technische Thermodynamik, LTT-Erlangen, Universität Erlangen-Nürnberg, Erlangen, D-91058, Germany

SOURCE: International Journal of Heat and Mass Transfer (1998), 41(13), 1899-1906
CODEN: IHMAK; ISSN: 0017-9310
PUBLISHER: Elsevier Science Ltd.
LANGUAGE: English

AB The promoting properties of hard coatings with an amorphous hydrogenated carbon basis to attain dropwise condensation (DWC) of steam on coated copper surfaces were investigated. Using differently produced coatings, equilibrium contact angles of 0deg, 65, 74 and 90deg could be reached for water. Stable and well reproducible heat transfer measurements could be performed. For a subcooling temperature of the condenser surface of 5 K, the DWC heat transfer coefficient at the vertical wall is 11 times higher for the surface with 0deg = 90° than that measured for film-wise condensation (FWC), seven times higher for the surface with 0deg = 74° and 3.5 times higher for the surface with 0deg = 65°. In comparison to the heat transfer coefficient measured for a contact angle of 90° for the heat flux ranging from 0.4-0.9 MW m-2 only 53-45% (for 0deg = 74°) and 1-7.5% (for 0deg = 65°) of the 90°-values were determined for 0deg

= 90° the observed DMC keeps very well stable up to a tech. achievable maximum heat flux of 1.54 MW m⁻². For Q_{eq} = 74° and for Q_{eq} = 65°, however, expanded condensation streams (mixed with condensation) appeared on the surface at heat fluxes of 1.03 MW m⁻² and 0.7 MW m⁻². In these situations the performance characteristic is less developed in comparison to pure DMC, but still better than for pure FWC.

REFERENCE COUNT:

15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 13 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 1998:272700 CAPLUS
DOCUMENT NUMBER: 128:272165

TITLE: Operation and control of dividing wall distillation columns. Part 2: simulation

INVENTOR(S): and pilot plant studies using temperature control
Mutaib, M. I. Abdul; Zeglam, A. O.; Smith, R.
SOURCE: Department of Process Integration, UMIST, Manchester, UK

DOCUMENT TYPE: Chemical Engineering Research and Design (1998), 76(A3), 319-334

PUBLISHER: CODEN: CERDEE; ISSN: 0263-8762

LANGUAGE: Institution of Chemical Engineers
Journal English

AB This paper follows on from preliminary work to investigate the theor. aspects of control of dividing wall columns in Part 1

of this paper. Two different control arrangements were investigated using temperature control. Dynamic simulation was first used to test the control configurations. These were then investigated in a large-scale pilot plant. The simulation and pilot plant runs show the same basic trends from the control arrangements. In all cases, the control arrangements investigated proved to give a stable response to fluctuations in the feed to the column. Temperature control resulted in an off-set in one of the product

purities. This was demonstrated in both simulation and practical runs. A procedure was suggested to overcome this off-set by over-refluxing the column. The procedure allows the column to be designed for min. over-refluxing.

REFERENCE COUNT:

20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 14 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 1997:469893 CAPLUS
DOCUMENT NUMBER: 127:77367

TITLE: Ant pest control container

INVENTOR(S): Okano, Takayoshi; Yamashita, Fukuo
PATENT ASSIGNEE(S): Jpn. Kokai Tokkyo Koho, 5 pp.
SOURCE: CODEN: JKKXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09311154	A2	19970520	JP 1995-319669	19951113
PRIORITY APPL. INFO.:			JP 1995-319669	19951113
AB				

An ant bait container is partitioned to supply 22 gel baits. The general-purpose product shows long-term effectiveness and contains 22 edible components, because feeding habits depend on season, colony state, and type of ant, to assure ant colony destruction. Thus, a plastic container (60 mm internal diameter, 10 mm depth) was formed with a receptacle (30 mm internal diameter, 3 mm depth), divided into 2

sections, at the bottom. One side of the receptacle was filled with bait containing sugar and the other side with bait containing silkworm pupa powder, each of which contained boric acid as the pest control agent. The product was more efficient in aggregating ants, both in Aug. and Oct. and with 2 kinds of ants, than were containers from which the dividing wall was removed and that had 1 gel bait containing sugar, pupa powder, or a mixture of these components.

L8 ANSWER 15 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 1997:410592 CAPLUS
DOCUMENT NUMBER: 127:36651

TITLE: Reactor for selective carbon monoxide oxidation in hydrogen-rich gas

INVENTOR(S): Strobel, Barbara; Heil, Dietmar; Benz, Uwe; Tillmetz, Werner
PATENT ASSIGNEE(S): Daimler-Benz A.-G., Germany
SOURCE: Ger. Offen., 8 pp.
CODEN: GWMXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19539648	A1	19970507	DE 1995-19539648	19951025
DE 19539648	C2	19980226		
PRIORITY APPL. INFO.:			DE 1995-19539648	19951025
AB				

A compact isothermal reactor contains (1) reaction zones where a H₂-rich gas and O₂ or air are contacted to oxidize selectively CO which is contained in the gas and (2) cooling zones which are filled with a flowing cooling medium. The alternate reaction zones and cooling zones are stacked in the filter press mode by using foils covered with a catalyst (e.g., Pt and/or Ru on a Al₂O₃ or zeolite carrier) on the surface facing the reaction zone as dividing walls. The arrangement permits maintaining the optimum temperature during the exothermic reaction. The reactor is especially useful for refining of crude H₂ produced from MeOH by steam reforming. The CO content is decreased by oxidation from 2-3 volume to <40 ppm. The purified H₂ is suitable for fuel cells.

L8 ANSWER 16 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 1997:320851 CAPLUS
DOCUMENT NUMBER: 126:296980

TITLE: Procedure and apparatus for removal of soot particles from waste gases resulting from combustion of fuel oil

PATENT ASSIGNEE(S): Kalusa, Bernhard, Germany
SOURCE: Ger. Offen., 8 pp.
CODEN: GWMXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19636434	A1	19970320	DE 1996-19636434	19960907
PRIORITY APPL. INFO.:			DE 1996-19636434	19960907
AB			DE 1995-19533343	19950908

Soot particles are removed from waste gases by contacting with an absorption liquid (e.g., liquid paraffins in the form of mist or aerosol). The absorbed soot particles are separated from liquid paraffins by settling. The apparatus consists of (1) a main purification chamber for contacting of the absorption liquid with waste gases and (2) a sedimentation chamber

placed underneath the main purification chamber. Both chambers are separated by a perforated dividing wall. The sedimentation chamber is filled completely and the main purification chamber is filled partially with the absorption liquid. An additional purification chamber containing 21 filter element is placed beyond the main purification chamber to remove entrained absorption liquid

L8 ANSWER 17 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:49412 CAPLUS
DOCUMENT NUMBER: 126:79686
TITLE: Utilization of closed-in-place underground storage tanks in the remediation of contaminated soils and groundwater

AUTHOR(S): REMTECH, Edinboro, PA, USA
CORPORATE SOURCE: Biotechnology in Industrial Waste Treatment and Bioremediation, (International Symposium on the Implementation of Biotechnology in Industrial Waste Treatment and Bioremediation), Grand Rapids, Sept. 15-16, 1992 (1996), Meeting Date 1992, 359-374.

Editor(s): Hickey, Robert F.; Smith, Gretchen. Lewis: Boca Raton, Fla.
CODEN: 63UJAH

DOCUMENT TYPE:

English

LANGUAGE:

Three USTs, each 40,000 gal in capacity, contained #4 fuel oil and were closed-in-place at a large refining plant. Tanks are 42 ft long, 10.5 ft in diameter, and lie beneath a roadway 30 ft in width between two buildings. Closure-in-place was selected to prevent potential damage to adjacent structures, maintain necessary roadway access, and avoid costly shoring and dewatering of an excavation pit. The nonfeasibility of tank and contaminated soil removal suggested in situ treatment. One of the three closed-in-place USTs was utilized in the construction of an in situ bioremediation treatment system. A concrete floor was poured inside the underground tank to provide a level foundation for anchoring two dividing walls. One wall forms an open-top tank 18 ft long, 8 ft wide, and 2.5 ft high. The second wall forms an open-top tank 4 ft long, 8 ft wide, and 3 ft high. Groundwater pumped into the longer tank flows through a series of weirs where volatilization, oxygen saturation, and nutrient addition occur. Treated groundwater accumulates in the smaller tank for injection by one of three systems. Water is injected through drive points installed horizontally through the tank walls and a northern and southern series of injection wells. Initial assessment revealed free product on the groundwater surface between the tanks and the buildings. Microbiol. analyses indicated hydrocarbon-degrading bacteria were present. Dissolved oxygen and nutrient concns. in groundwater samples were low. Trends in the concns. of dissolved oxygen and nutrients at monitoring points during system operation suggest bioactivity. Soil borings installed adjacent to initial assessment soil borings 8 mo after system completion show total petroleum hydrocarbon (TPH) concns. in soils reduced from levels above 100,000 to <10 mg/Kg.

L8 ANSWER 18 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1996:44468 CAPLUS
DOCUMENT NUMBER: 125:95173
TITLE: Advisory by the Science Advisory Board's (SAB) Drinking Water Committee (DWC) concerning the health significance of HPC bacteria eluted from POU/PDE (Point of Use/Point of Entry) drinking water treatment devices

CORPORATE SOURCE: United States Environmental Protection Agency, Washington, DC, USA
SOURCE: Report (1996), EPA-SAB-DWC-ADV-96-002; Order No. PB96-14579GAR, 8 pp. Avail.: NTIS
From: Gov. Rep. Announce. Index (U. S.) 1996, 96(14),

Abstr. No. 14-01,306

DOCUMENT TYPE:

Report

LANGUAGE:

English

A summary is given of the Committee's comments and reactions to the Project and to the specific questions raised in the charge to the Committee. These questions are: (1) Is existing epidemiol. evidence sufficient to conclude that amplification of HPC concns. by POU/PDE devices, used on centrally treated water, does not pose a threat of adverse health effects to the normal population? (2) If existing evidence is not sufficient, could the proposed research (especially the normal controls), potentially provide enough information to conclude there is no threat to the normal population. If not, what other research is needed? (3) Is there a need for addnl. research to assess the potential threat posed to immuno-compromised persons by elevated HPC concns. eluted from POU/PDE devices (relative to other HPC exposures)? (4) If so, what is the most appropriate type of research: animal studies, epidemiol. studies, or a combination? (5) If animal studies are appropriate, is the ORD research proposal a scientifically sound and adequate proposal for determining the potential threat to immuno-compromised persons. If not, how should it be modified.

L8 ANSWER 19 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1996:431599 CAPLUS
DOCUMENT NUMBER: 125:64776
TITLE: Magnesium melting furnace and melting of magnesium

INVENTOR(S): Schroeder, Dominik; Rauch, Erich
PATENT ASSIGNEE(S): Schmitz & Apelt, Industrietechniken GmbH, Germany; Rauch Fertigungstechnik GmbH, PCT Int. Appl., 30 pp.

SOURCE:

CODEN: PLEXDZ

DOCUMENT TYPE:

Patent

LANGUAGE:

German

FAMILY ACC. NUM. COUNT:

1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9614439	A2	19960517	WO 1995-EP4232	19951027
WO 9614439	A3	19960815		
W: AU, CA, US				
CA 2180351	AA	19960517	CA 1995-2180351	19951027
AU 9539258	A1	19960531	AU 1995-39258	19951027
EP 738334	B1	19961023	EP 1995-937021	19951027
EP 738334	B1	20011010		
R: AT, BE, DE, ES, FR, GB, IT, NL, SE				
AT 206770	E	20011015	AT 1995-937021	19951027
US 5908488	A	19990601	US 1996-669405	19960702
PRIORITY APPL. INFO.:			DE 1994-4439214	19941103
			WO 1995-EP4232	19951027
			W	

AB The furnace has a plurality of chambers and the material to be melted is fed into a melting chamber through a charging chute that dips under the surface of the melting bath. The melt is slowly transferred into a holding chamber through a passage situated in the lower 3rd of a dividing wall above a layer of impurities settling at the bottom of the melting chamber. The melt flows slowly through the holding chamber, with impurities rising to the surface or settling to the bottom. The purified melt flows through a 2nd passage situated in the lower 3rd of a 2nd dividing wall into a metering chamber. The melt can be removed from the metering chamber through a transfer pipe by using a metering pump. The furnace makes it possible simultaneously to melt, purify and remove metered amts. of Mg.

L8 ANSWER 20 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1993:606072 CAPLUS
DOCUMENT NUMBER: 119:206072
TITLE: The control of **dividing wall**

AUTHOR(S):
CORPORATE SOURCE:
SOURCE: Lestak, F.; Smith, R.
Cent. Process Integrat., UMIST, Manchester, UK
Chemical Engineering Research and Design (1993),
71(A3), 307
CODEN: CERDEE; ISSN: 0263-8762

DOCUMENT TYPE:
LANGUAGE: English
AB Good control performance of a **dividing wall** distillation
column (DWC) can be achieved by placing a decoupler against the
most serious interactions. In comparison with a simple column sequence,
the DWC is easier to control, with only 4 **pure** products. As
the number of loops in a simple sequence and only 3 **pure** products. As
the number of loops is decreased, the level of interactions is lower. In
addition, there is no interaction between the top and bottom **purity**
loops, as there is in a simple distillation column.

L8 ANSWER 21 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1989:459899 CAPLUS
DOCUMENT NUMBER: 111:59899
TITLE: Dispensing apparatus for milk of lime for sugar juice
purification

INVENTOR(S): Dyba, Eugeniusz; Rut, Marian; Kowal, Jan; Grabowski,
Zygmunt
Cukrownie Dolnoslaskie, Pol.
Pol., 8 pp. Abstracted and indexed from the unexamined
application.
CODEN: POXKA7

DOCUMENT TYPE:
LANGUAGE: Polish
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PL 142495	B1	19871031	PL 1985-251880	19850206
PRIORITY APPL. INFO.:			PL 1985-251880	19850206

AB The dispensing apparatus consists of a vertical container with a rectangular
cross section, a prismatic bottom, a divider in the bottom section, and 2
bottom outlets. An inlet for milk of lime is in the form of an elastic
tube provided with a nozzle. The nozzle is placed above the
dividing wall and is movable by means of a servomotor to
divide the exiting stream of milk of lime. A portion of the latter flows
into the 1st section from which it is recycled. The other portion flows
into the 2nd section from which it is charged for **purification** of the
sugar juice. The arrangement provides continuous circulation of milk of
lime, ensures good dispersion, and eliminates formation of solid deposits.
The apparatus is illustrated.

L8 ANSWER 22 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1988:411503 CAPLUS
DOCUMENT NUMBER: 109:11503
TITLE: Model of mass transfer in a grain of nonuniformly
porous activated carbon

AUTHOR(S): Mamchenko, A. V.
CORPORATE SOURCE: Inst. Kolloidn. Khim. Khim. Vody, Kiev, USSR
Khimiya i Tekhnologiya Vody (1988), 10(2), 99-102
CODEN: KTIWOL; ISSN: 0204-3556

DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB A model for mass transfer in a grain of activated C assumes merging of

adjacent micropores by the destruction of **dividing walls**
with the formation of larger pores, permeable by the adsorbed substance.

L8 ANSWER 23 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1986:634174 CAPLUS
DOCUMENT NUMBER: 105:234174
TITLE: Three Mile Island Unit 2 dry-canal defueling water
cleanup system--an update

AUTHOR(S): Katonak, L. E.; Hitz, C. G.
CORPORATE SOURCE: Bechtel Natl. Inc., Oak Ridge, TN, USA
Waste Management (Tucson, Arizona) (1985), (2), 363-8
SOURCE: CODEN: PSMWDY; ISSN: 0275-6196

DOCUMENT TYPE: Journal
LANGUAGE: English

AB During the defueling phase of the TMI-2 cleanup effort, the reactor vessel
(RV) with internal indexing fixture (IIF), the refueling canal, and the
spent fuel pool will be partially filled with water to enable the fuel
transfer operation to occur safely. This water must be maintained at a
137cs concentration of 0.01 to 0.02 $\mu\text{Ci/mL}$ and a clarity level of approx. 1
nephelemetric turbidity unit (NTU). These criteria were selected to
ensure that radiation dose rates to workers 1 ft above the defueling
platform are maintained as low as reasonably achievable (ALARA), and to
maintain sufficient water clarity to allow workers to see underwater
components in the vessel, refueling canal, and spent fuel pool during the
defueling operation. A defueling water cleanup system (DWCS)
was designed to meet these objectives. Two subsystems constitute the
DWCS. One subsystem processes water within the vessel IIF (a
cylindrical extension of the vessel) with a 400 gpm design basis flowrate
for filtration and a 60 gpm flowrate for ion exchange. The other
subsystem processes refueling/spent fuel pool water with a 400 gpm
filtration system and a 30 gpm ion-exchange system.

L8 ANSWER 24 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1986:229954 CAPLUS
DOCUMENT NUMBER: 104:229954
TITLE: Apparatus for anaerobic **purification** of
wastewaters

INVENTOR(S): Novotny, Josef
PATENT ASSIGNEE(S): Czech.
SOURCE: CODEN: CZXXA9
DOCUMENT TYPE: Patent
LANGUAGE: Czech
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CS 220724	B	19830429	CS 1981-4515	19810617
PRIORITY APPL. INFO.:			CS 1981-4515	19810617

AB An apparatus for anaerobic treatment of wastewaters consists of a vessel
divided into a settling chamber and a fermentation chamber. **Dividing**
walls do not reach to the bottom providing a passage. The vessel
is closed at the top and is provided with a service shaft at its short
side. In the shaft, a winch is mounted for a cable connected with a float
having an attached cleaning chain. The latter is used for cleaning the
passage between the chambers. The apparatus is suitable for wastewater
treatment in settlements having 5150 people.

L8 ANSWER 25 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1986:41584 CAPLUS
DOCUMENT NUMBER: 104:41584
TITLE: Defueling filter test
AUTHOR(S): Storlon, J. M.; Kramer, J. F.
CORPORATE SOURCE: Res. Dev. Div., Babcock and Wilcox, Lynchburg, VA.

SOURCE: 24506-1165, USA
ACS Symposium Series (1986), 293(Three Mile Isl.
Accid.), 239-49

CODEN: ACSMC8; ISSN: 0097-6156

DOCUMENT TYPE:
LANGUAGE:

English
Journal

AB TMI-2 sustained core damage creating a significant quantity of fine debris, which can become suspended during the planned defueling operations and will have to be constantly removed to maintain water clarity and minimize radiation exposure. To accomplish these objectives, a Defueling Water Cleanup System (DWCS) was designed. One of the primary components in the DWCS is a custom designed filter canister using an all stainless steel filter medium. The full scale filter canister is designed to remove suspended solids from 800 to 0.5 μ in size. Filter cartridges were fabricated into an element cluster to provide for a flow rate of >100 gal/min and tested with simulated solid suspensions of 1400 and 140 ppm in borated water (5000 ppm B). Test data enabled a full-scale filter canister to be generated.

L8 ANSWER 26 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1985:444353 CAPLUS
DOCUMENT NUMBER: 103:44353

TITLE: Three Mile Island Unit 2 defueling water cleanup system

AUTHOR(S):

Bell, W. H.; Rao, K. B.

CORPORATE SOURCE: Bechtel Natl. Inc., Oak Ridge, TN, USA
Waste Management (Tucson, Arizona) (1984), (2), 489-94

CODEN: PSWMDY; ISSN: 0275-6196

DOCUMENT TYPE:
LANGUAGE:

Journal
English

AB During the defueling operations of the damaged TMI-2 reactor, it is necessary to fill the reactor vessel, refueling canal and spent fuel pool with water to conduct fuel transfer operations. This water must be maintained at a 137Cs concentration of 0.02 μ Ci/mL and a clarity level of 1 NTU. These criteria were selected to ensure that radiation dose rates to workers on the fuel handling bridge above the reactor vessel and in the fuel handling building are maintained as low as reasonably achievable (ALARA) and to maintain sufficient water clarity to enable workers to see underwater components in the reactor vessel, refueling canal, and spent fuel pool during defueling operations. To meet these objectives a defueling water cleanup system (DWCS) was designed which consists of 2 sep. subsystems. One system processes the water within the reactor vessel and a cylindrical contamination barrier to be placed above the reactor vessel with a design basis filtration system flow rate of 400-gal/min and a soluble fission product removal ion exchange system of 60-gal/min. The other system processes the water in the refueling canal and spent fuel pool with a 400-gal/min filtration system and a 15-gal/min ion exchange system.

L8 ANSWER 27 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1981:5191 CAPLUS
DOCUMENT NUMBER: 94:5191

TITLE: High-performance countercurrent distribution (HPCD)

Brenner, M.; Mueller, F.; Bentz, R.; Streib, B.; Walliser, H. P.

CORPORATE SOURCE: Inst. Org. Chem., Univ. Basle, Basle, 4056, Switz.
Pept., Struct. Biol. Funct., Proc. Am. Pept. Symp., 6th (1979), 91-7. Editor(s): Gross, Ehard;

Meinhof, Johannes. Pierce Chem. Co.: Rockford, Ill.

DOCUMENT TYPE:
LANGUAGE:

Conference
English

AB A prototype of a machine for batch or continuous preparative separation, e.g., for peptide purification, is discussed. The separation chamber is

cylindrical, with radius 5 and length 1 cm, and 20 or 50 adjacent chambers make up a separation cylinder. Communication between chambers is provided by a small hole in each dividing wall. Two or more separation cylinders make up a separation train. The holes are located on a straight line along the train. One of the phases forms a film that wets the chamber walls. Its use is discussed.

L8 ANSWER 28 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1979:528539 CAPLUS
DOCUMENT NUMBER: 91:128539

TITLE: Deep well biological purification: a new technology and its application to paper industry wastes

AUTHOR(S):

Vigreux, B.; Caillol, A.

CORPORATE SOURCE: Soc. Gen. Tech. Nouvelles, Ft. Papier, Carton & Cellulose (1979), 28(6), 60-3

CODEN: PCCIAK; ISSN: 0031-1367

DOCUMENT TYPE:
LANGUAGE:

French
Journal

AB Biol. treatment in wells 30-150-m deep having a concentric dividing wall reaching nearly to the bottom of the well provides adequate purification of the waste with only a small amount of excess sludge production. BOD5 and COD were reduced from 212 and 496 to 22 and 7 mg/L in a pilot plant.

L8 ANSWER 29 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1977:443767 CAPLUS
DOCUMENT NUMBER: 87:43767

TITLE: Sewage treatment system

INVENTOR(S): Teller, Ray E.; Zachar, Sem G.

USA

PATENT ASSIGNEE(S): U.S., 7 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 4021347	A	19770503	US 1976-647670	19760109
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PRIORITY APPL. INFO.:

US 1976-647670	A	19760109
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AB The apparatus consists of an elongated, preferably cylindrical tank, for underground installation with its long axis horizontal. The major portion of the tank is an aeration compartment with a plurality of diffusers for the injection of air bubbles into the sewage as it flows from the inlet to pass over the edge of a dividing wall into the settling compartment, whence foam, floating solids, and settled solids are removed and returned to the inlet end of the aeration compartment. The sewage then passes through 21 filtering screens to a 3rd section and then through the outlet to a further treatment section where it is forced to flow in an elongated path by baffles and is mixed with O3 or Cl, which purify the effluent so that it can usually be discharged to natural waterways.

L8 ANSWER 30 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1977:411443 CAPLUS
DOCUMENT NUMBER: 87:11443

TITLE: Ion-exchange filter

Larichev, V. I.; Bolotov, P. A.; Torlina, V. N.; Lotarev, V. I.; Dobryn, B. I.

INVENTOR(S): USSR

U.S.S.R. From: Otkrytiya, Izobreteniya, Prom. Obratzeny, Tovarnye znaki 1976, 53(27), 14.

PATENT ASSIGNEE(S):

CODEN: URXXAF

SOURCE: U.S.S.R. From: Otkrytiya, Izobreteniya, Prom. Obratzeny, Tovarnye znaki 1976, 53(27), 14.

DOCUMENT TYPE: Patent
LANGUAGE: Russian
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

SU 521904 T 19760725 SU 1974-2064395 19741004

PRIORITY APPL. INFO.:

AB An ion-exchange filter comprised a vessel divided into chambers by the vertical impermeable walls, a drain device, and a water-distributing device; the chambers were filled with a filtering material. To eliminate the influence of temperature of the water being filtered on the filtering material and to thus increase the purity of the treated water, the dividing walls were provided with horizontal channels, the outer of which, along with the walls of the case, formed cooling chambers. Each chamber was provided with an outlet tube.

L8 ANSWER 31 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1977:411442 CAPLUS

DOCUMENT NUMBER: 87:11442

TITLE: Portable ion-exchange filter for the purification of water

Shlakadze, M. E.; Iosava, G. D.

USSR

INVENTOR(S): U.S.S.R. From: Otkrytiya, Izobreten., Prom. Obraztsy, Tovarnye znaki 1976, 53(27), 17.

PATENT ASSIGNEE(S): CODEN: URXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Russian

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

SU 521919 T 19760725 SU 1974-1991606 19740220

PRIORITY APPL. INFO.:

AB The title filter comprised a case with a dividing wall, a cartridge with perforated bottom located inside the case, and a cover with slots. To increase the degree of the purification of the water by simultaneous demineralization, clarification, and disinfection in one filter, the case was provided with a cartridge holder, in which the ion-exchange cartridges (with different ion exchangers) were located; the cartridges were connected in series by channels, one of which was formed by the dividing wall and cartridge, the 2nd by the cartridge holder and a slot in the cover.

L8 ANSWER 32 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1977:145579 CAPLUS

DOCUMENT NUMBER: 86:145579

TITLE: Recovery of fresh water from salt-containing raw water by evaporation

INVENTOR(S): Stamer, Roy; Hutchinson, Malcolm

PATENT ASSIGNEE(S): Weir Westgarth Ltd., UK

Ger., 13 pp.

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

DE 1517492 B2 19761014 DE 1962-R33373 19620823

DE 1517492 C3 19770526

PRIORITY APPL. INFO.: GB 1961-30563 A 19610824

AB The seawater trickles over the upper side of the zig-zag shaped dividing walls of the multistage cascade evaporator; the vapor which has evaporated from the thin film is led directly against the walls of the next chamber so that the heat from the thin film condensation is directly transferred to the water in the next chamber.

L8 ANSWER 33 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1975:64062 CAPLUS

DOCUMENT NUMBER: 82:64062

TITLE: Waste water purification apparatus

INVENTOR(S): Mochizuki Tadao; Kawada, Koichi

Ger. Offen., 19 pp.

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

DE 2304986 A1 19740214 DE 1973-2304986 19730201

DE 2304986 B2 19760325

DE 2304986 C3 19761104 DE 1973-2304986 A 19730201

PRIORITY APPL. INFO.:

AB An upright waste water purification tank is separated into smaller and larger compartments by a vertical wall reaching almost to the top of the tank. At the lower end of the smaller compartment the waste water enters along with air under pressure. The aerated water flows over the dividing wall into the main compartment containing biol. active mud. The impurities gradually settle and are drawn off at the bottom of the tank while the purified water flows over the lowered edge of the water wall into an outlet gutter.

L8 ANSWER 34 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1974:124393 CAPLUS

DOCUMENT NUMBER: 80:124393

TITLE: Conveying apparatus for activated sludge

INVENTOR(S): Hofmeister, Franz

GER. Offen., 15 pp.

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

DE 2232477 A1 19740110 DE 1972-2232477 19720701

PRIORITY APPL. INFO.:

AB The apparatus for conveying activated sludge in compact sewage purify plants consisted of a pump vehicle, movable back and forth on the dividing wall between the activated-sludge and the aerating tanks, with a suction device which reached to the vicinity of the bottom of the aerating tank and connected with pipes to the activated-sludge tank and the sludge collector. The water concentration of the sucked sludge remained constant

L8 ANSWER 35 OF 41 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1973:420742 CAPLUS

DOCUMENT NUMBER: 79:20742

TITLE: Adiabatic distillate evaporator

INVENTOR(S): Lukin, Yu. Ya.

PATENT ASSIGNEE(S) : Kaliningrad Technical Institute of the Fishing Industry and Economy
SOURCE: Ger. Offen., 13 pp.

DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE
DE 2135685 A1 19730125 DE 1971-2135685 19710716
DE 2135685 B2 19770721
PRIORITY APPL. INFO.: DE 1971-2135685 A 19710716
AB An efficient, adiabatic, multistage saline water distillation apparatus for small-scale (550 tons/day) production consists of one or more vertical shell-and-tube condensers surrounded by a short, cylindrical evaporation chamber. The chamber and the condenser are segmented along their entire length by radially disposed vertical separating walls into a number of stages.

In the case of multi-condenser design, each stage consists of a chamber sector containing a smaller cylindrical condenser. Openings in the dividing walls of the evaporating chamber allow preheated saline water to flow from 1 evaporating stage to the next. Similar connections between the condenser sectors or condensers allow steam, distillate, and noncondensable gases to flow consecutively through adjoining condensing stages. Since it is multistage, even though of small capacity, it uses less heat (150-180 kcal/kg at 30 tons/day with 8-10 stages), it occupies 30% less space, and it needs less condenser area.

L8 ANSWER 36 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 1971:77715 CAPLUS
DOCUMENT NUMBER: 74:77715

TITLE: Device for the agglomeration and precipitation of suspended matter from gases and vapors
INVENTOR(S): Petersen, Gerd
SOURCE: Ger. Offen., 23 pp. Addn. to Ger. Offen. 1,926,651
CODEN: GWXEXX

DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE
DE 1934229 A 19710128 DE 1969-1934229 19690705
DE 1934229 B 19711028
DE 2015737 A 19711021
DE 2015737 B2 19800925
DE 2015737 C3 19811015
CH 536130 A 19730615
FR 2056320 A5 19710514
GB 1315539 A 19730502
PRIORITY APPL. INFO.: DE 1970-2015737 A 19700402
DE 1969-1934229 A 19690705

AB Addition to Ger. Offen. 1,926,651. A device is described for the purification of gases and vapors from fine mist and dust particles which has rotating chambers with dividing walls, wires, and nets as separators and jets to moisten the gases which are supplied through the center, flow in any direction and are accelerated by centrifugal forces. The chambers are surrounded by a perforated cylinder, a dense net, or grid.

L8 ANSWER 37 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 1971:46763 CAPLUS

DOCUMENT NUMBER: 74:46763
TITLE: Crystallization column
INVENTOR(S): Schuetz, Gerhard Z.
PATENT ASSIGNEE(S): Sulzer, Gebr., A.-G.
SOURCE: Ger. Offen., 13 pp.

DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE
DE 2020664 A 19701217 DE 1970-2020664 19700428
CH 509090 A 19710630 CH 1969-509090 19690609
FR 2052450 A 19720715 CH 1970-525014 19700415
FR 2052450 A5 19710409 FR 1970-19450 19700527
NL 7007831 A 19701211 NL 1970-7831 19700529
GB 1248714 A 19711006 GB 1970-1248714 19700608
CH 1969-8760 A 19690609
PRIORITY APPL. INFO.: CH 1970-5570 A 19700415

AB A crystallization column suitable for industrial purposes has perforated dividing walls movable by means of a cam or vibrator arrangement to enable sufficient exchange between the crystallized and liquid phases.

L8 ANSWER 38 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 1970:459127 CAPLUS
DOCUMENT NUMBER: 73:59127

TITLE: Continuous waste water purification
INVENTOR(S): Wieland, Guenter; Wolf, Herbert
PATENT ASSIGNEE(S): Steimle, L. und C., G.m.b.H.
SOURCE: Ger. Offen., 8 pp.

DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE
DE 1813886 A 19700716 DE 1968-1813886 19681211
PRIORITY APPL. INFO.: DE 1968-1813886 19681211
AB An apparatus for the continuous purification of waste water is described in which oil and other substances are separated by sedimentation, flocculation, filtration, and adsorption in a container with inclined bottom and chambers with dividing walls.

L8 ANSWER 39 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 1969:89121 CAPLUS
DOCUMENT NUMBER: 70:89121

TITLE: Unit for the separation of carbon dioxide from combustion gases
INVENTOR(S): Furca, Emeric; Gutenkunst, Ludovic; Dane, Andrei
PATENT ASSIGNEE(S): Romania, Machine Construction Works
SOURCE: Rom., 5 pp.

DOCUMENT TYPE: Patent
LANGUAGE: Romanian
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE
RO 51290 19681008 RO 19640828

AB

Combustion gases are mixed with water passing through an injector. The mixture is collected in a dissolving tank with a **dividing wall** which forms 2 equal compartments. There the CO₂ is dissolved in the water, while the less-soluble gases escape through a stack on top of the tank. The tank is also fitted with an overflow for the draining of the excess water, situated at a higher level than the **dividing wall**. The water containing the CO₂ flows over the **dividing wall** to the 2nd compartment of the dissolving tank. Then it flows to a communicating degassing tank likewise fitted with a **dividing wall**. Combustion gases passing through a heat exchanger heat the water in the tank and the dissolved gases are aspirated into a tank. The passage over the **dividing wall** facilitates the degassing. The degassed water is cooled by a heat exchanger and recirculated to the dissolving tank. The gases from the tank are recirculated to increase the CO₂ concentration to the desired level. For this purpose, 2 installations can be connected in series, where the gases from the 1st degassing tank pass to a 2nd analogous installations for the increase of the CO₂ concentration and finally to the gas tank.

L8 ANSWER 40 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 1965:416199 CAPLUS
DOCUMENT NUMBER: 63:16189
ORIGINAL REFERENCE NO.: 63:2835h,2836g-h,2837a-c
TITLE: Safety design criteria for explosives and high energy propellant manufacturing and storage facilities
AUTHOR(S): Safilian, L. W.; Rindner, R. M.
CORPORATE SOURCE: Picatinny Arsenal, Dover, NJ
SOURCE: Am. Chem. Soc., Div. Fuel Chem., Preprints (1963), 7(3), 117-59

DOCUMENT TYPE: Journal
LANGUAGE: English

Quant., realistic criteria are desired for optimum design of protective structures to prevent propagation of explosion, injury to personnel, and damage of material. The overall program consists of three phases: (1) prevention of propagation and personnel injury due to **pure blast** effects; (2) the effects of primary fragment impacts resulting from rupture of the donor explosive casing in causing explosion propagation; and (3) the development of design criteria for barricades and substantial **dividing walls** for prevention of explosion propagation and personnel injury. In phases 1 and 2, methods are described for establishing quant. design criteria for explosive and high-energy propellant facilities relating to prevention of explosion propagation by blast and fragment impact effects. The methods presented are based on prediction of large-scale behavior of these materials employing relations which require data from small-scale tests only. Relations are also developed which permit the calcn. of safe distances for prevention of propagation of detonation due to fragment impact between adjacent potentially mass detonating explosive systems for any assumed degree of risk and degree of steel casting. These relations permit prediction of probability of propagation in an existing situation as well as calcn. of necessary changes in acceptor shielding and (or) separation distances for any other tolerable degree of risk. In phase 3, a quant. method for realistic design of protective walls or combinations of walls (manufacturing bay or storage cubicle) is outlined. Consideration is given to such factors as donor effects, wall responses, and acceptor sensitivity (personnel, equipment, or another explosive charge) to the effects of donor detonation. Special emphasis is placed on close-in effects of donor detonation where non-uniformity of wall loading makes the application of the plane wave theory not valid. The donor charge which determine the blast loads and primary fragments is discussed in terms of various parameters such as pressure and impulse patterns formed on the wall surface as a function of donor characteristics. Wall responses (to the blast loads resulting from the donor explosion) are discussed in terms of various modes of wall failure which may impair structural integrity of the wall. These are: (1) spalling (causing formation of secondary fragments); (2)

punching (local shear failure causing formation of secondary fragments); (3) flexural failure (caused by overall flexing action of the wall which brings the wall to the point of incipient breakup); (4) total destruction of the wall (causing complete breakup into secondary fragments); (5) perforation of the wall by primary missiles (resulting in either penetration of the wall or spalling). Various degrees of wall support as well as different types of wall construction including sandwich-type walls are also discussed. Acceptor sensitivity is discussed in terms of either total protection level (for personnel and equipment) where essentially no damage to the wall can be tolerated or lesser degrees of protection against propagation of explosion.

L8 ANSWER 41 OF 41 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 1910:17685 CAPLUS
DOCUMENT NUMBER: 4:17685
ORIGINAL REFERENCE NO.: 4:3166g-1
TITLE: Electrolytic Preparation of Copper Sulphate from Cement Waters
AUTHOR(S): Rambaldi, G. B.
SOURCE: Ind. chim. (1910), 9, 1-4
From: Chem. Zentr., 1909, I, 1675

DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB The lower half of a cell is divided into 2 compartments by a non-conducting wall and each is partly filled with the cement water and dilute CuSO₄, resp., and enough dilute H₂SO₄ poured in to cover the **dividing wall**. Cu electrodes are used in each compartment, the one in the cement water being made the cathode. By interchanging the electrodes and renewing the liquids, a **pure Cu** solution is obtained continuously.

=> S DIVIDING WALL AND DISTILLATION

22169 DIVIDING
22 DIVIDINGS
22189 DIVIDING
(DIVIDING OR DIVIDINGS)
280725 WALL
127869 WALLS
363351 WALL
(WALL OR WALLS)

319 DIVIDING WALL
(DIVIDING(W) WALL)
53054 DISTILLATION
377 DISTILLATIONS
53190 DISTILLATION
(DISTILLATION OR DISTILLATIONS)

173904 DISTN
1765 DISTNS
174640 DISTN
(DISTN OR DISTNS)

L9 54 DIVIDING WALL AND DISTILLATION
(DISTILLATION OR DISTN)

=> S L9 AND TEDA
L10 348 TEDA
0 L9 AND TEDA

=> S L9 AND TRIETHYL?
L11 112737 TRIETHYL?
0 L9 AND TRIETHYL?

=> S L9 NOT L8
L12 44 L9 NOT L8

=> D 1-44 IBIB ABS

L12 ANSWER 1 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2006:183244 CAPLUS
DOCUMENT NUMBER: 144:236927
TITLE: Hydrocracking process for the production of ultra low

INVENTOR(S):
PATENT ASSIGNEE(S):
SOURCE:

DOCUMENT TYPE:
LANGUAGE:
FAMILY ACC. NUM. COUNT:
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 7005057	B1	20060228	US 2002-238511	20020905

PRIORITY APPLN. INFO.:
AB A catalytic hydrocracking process for the production of ultra low sulfur diesel wherein a hydrocarbonaceous feedstock is hydrocracked at elevated temperature and pressure to obtain conversion to diesel boiling range hydrocarbons. The resulting hydrocracking zone effluent is hydrogen stripped in a stripping zone maintained at essentially the same pressure as the hydrocracking zone to produce a first gaseous hydrocarbonaceous stream and a first liquid hydrocarbonaceous stream. The first gaseous hydrocarbonaceous stream containing diesel boiling range hydrocarbons is introduced into a desulfurization zone and subsequently partially condensed to produce a hydrogen-rich gaseous stream and a second liquid hydrocarbonaceous stream containing diesel boiling range hydrocarbons. At least a portion of the first liquid stream is separated in a dividing wall column to produce a liquid hydrocarbonaceous stream containing diesel boiling range hydrocarbons which is also introduced into the desulfurization zone. An ultra low sulfur diesel product stream is recovered.

REFERENCE COUNT: 6

THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 2 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:1141802 CAPLUS
DOCUMENT NUMBER: 143:442793
TITLE: The study of the model predictive control strategy on the dividing-wall distillation column

AUTHOR(S):

CORPORATE SOURCE:

SOURCE:

PUBLISHER:
DOCUMENT TYPE:
LANGUAGE:

AB The D.P. of the side stream of a continuous distillation column is between that of the top and bottom products. Due to the closeness of the position to the feed, the quality of the side stream is easily disturbed by variations in the feed stream. This leads to a two-column system to be used for the separation. Therefore, putting a dividing wall in certain section of a column to sep. the feed and side stream, the quality of the side stream will not be disturbed by the feed. The energy consumption and the equipment cost of the dividing-wall distillation column are 30% lower than those of the two-column system. However, the difficulty in tray design and the complexity in the operation of a

dividing-wall column limit its application. The control strategy is discussed of the dividing-wall column. To testing the performance of the control system, a laboratory-scale dividing-wall distillation column was constructed. Applying the model predictive control technique to the dividing-wall column, the qualities of the both top and bottom as well as the side stream products were controlled by using a 3 + 3 multivariable process for the column temperature at three different positions. The explicit results demonstrate a good performance for applying model predictive control technique to the dividing-wall column. However, the long time continuous operation was not tested due to the limitation of the manpower. The reflux rate was controlled by a metering pump. The ratio of internal flow rate in both side of the dividing-wall was controlled by the two flow controllers. In this study, internal flow rates in both side of the dividing-wall were the same. The column performance is affected by the internal flow rates in the both side of the dividing-wall. A study of this ratio to the controllability of the multivariable control system will be performed in the future.

L12 ANSWER 3 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:975871 CAPLUS
DOCUMENT NUMBER: 143:248797
TITLE: Manufacture of (meth)acrylate esters via purification by distillation

INVENTOR(S):
PATENT ASSIGNEE(S):
SOURCE:

DOCUMENT TYPE:
LANGUAGE:
FAMILY ACC. NUM. COUNT:
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005239564	A2	20050908	JP 2004-47586	20040224

PRIORITY APPLN. INFO.:
AB The (meth)acrylate esters are manufactured via purification by distillation using apparatus equipped with dividing wall columns. Thus, a reaction mixture, given by transesterification of the methacrylate with BuOH, was mixed with a polymerization inhibitor and applied to a dividing wall column. A fraction from the middle of the column was condensed to give Bu methacrylate containing 52 ppm Me methacrylate and <0.5 ppm polymerization inhibitor.

L12 ANSWER 4 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:728544 CAPLUS
DOCUMENT NUMBER: 143:213498
TITLE: Consider dividing wall distillation to separate solvents. Using an established technology as part of a revamp installation provided new products at lower capital and operating costs than conventional methods

AUTHOR(S):
CORPORATE SOURCE:
SOURCE:

PUBLISHER:
DOCUMENT TYPE:
LANGUAGE:

AB A refinery applied optimized process simulation models for conventional distillation sequences and for sequences using a dividing wall column, to optimize the separation efficiency in distillation

The background of **dividing wall distillation** is outlined, and the process was applied to the separation of hexane and heptane, demonstrating that capital costs and energy costs could be saved.

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 5 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:727064 CAPLUS
DOCUMENT NUMBER: 143:175931
TITLE: Fractionation and treatment of full-boiling-range gasoline
INVENTOR(S): Schultz, Michael A.; Weismann, Joseph A.
PATENT ASSIGNEE(S): Uop LLC, USA
SOURCE: U.S., 7 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6927314	B1	20050809	US 2002-198196	20020717

PRIORITY APPL. INFO.:
AB A process to increase the octane number of a naphtha-boiling-range feed stock has been developed. Using a **dividing wall column**, the feed stock is separated into a light fraction comprising compds. containing five

carbon atoms or less, an intermediate fraction containing largely compds. having six carbon atoms, and a heavy fraction which comprises compds. containing more than six carbon atoms. The light and heavy fractions are passed to a gasoline-blending pool. The intermediate fraction is isomerized to increase the octane number of the gasoline-blending pool and form an isomerate. The isomerate is passed to the gasoline-blending pool. THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS REFERENCE COUNT: 6 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 6 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:580377 CAPLUS
DOCUMENT NUMBER: 143:61799
TITLE: Status and development trends of **dividing wall column** at home and abroad

AUTHOR(S): Qiu, Zhao-rong; Ye, Qing; Li, Cheng-yi
CORPORATE SOURCE: Department of Chemical Engineering, Jiangsu Polytechnic University, Changzhou, 213016, Peop. Rep. China

SOURCE: Jiangsu Gongye Xueyuan Xuebao (2005), 17(1), 58-61
CODEN: JGXUDD

PUBLISHER: Jiangsu Gongye Xueyuan Xuebao Bianjibw
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Chinese

AB A review. The **dividing wall column (DWC)** has been in use in chemical industry for the last 20 years. The DWC is now considered the accepted technol. (some 40 columns in operation at BASF) and is expected to grow steadily in number and applications in industrial practice. Investment costs are cut by 30%, operating costs by around 30%. More than 33 patents in America and more than 5 patents in China were obtained in the petrochem. field. The principle, structure, energy saving, and key technol. of DWC are reviewed. The applications and future application applications areas of the DWC are introduced and future application prospect of the DWC is presented.

L12 ANSWER 7 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:430048 CAPLUS
DOCUMENT NUMBER: 142:483999

TITLE: **Dividing wall distillation**

AUTHOR(S): Johnson, Megan
CORPORATE SOURCE: Centre for Process Integration, School of Chemical Engineering and Analytical Science, University of Manchester, UK

SOURCE: Tce (2005), 766, 30-31
CODEN: TCEAB8

PUBLISHER: Institution of Chemical Engineers
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review. **Dividing wall distillation** is described as an established technol., and by steady state simulations the perceived risks and benefits of this technol. could be assessed. Dynamic modeling is also described as a useful tool to evaluate the stability of typical feed and quality disturbances.

L12 ANSWER 8 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:17906 CAPLUS
DOCUMENT NUMBER: 142:158639
TITLE: Minimal energy requirements of **dividing-wall columns**

AUTHOR(S): Poth, Nikolaus; Bruns, Dirk; Stichlmair, Johann
CORPORATE SOURCE: Lehrstuhl fuer Fluidverfahrenstechnik, Technische Universitaet Muenchen, Garching, D-85747, Germany
SOURCE: Chemie Ingenieur Technik (2004), 76(112), 1811-1814
CODEN: CITEAH; ISSN: 0009-286X

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal

AB The min. energy demand of a **dividing-wall column** for separation of an ideal ternary mixture was investigated and compared with that of alternative **distillation** processes. Separation by a **dividing-wall column** (with lateral discharge of the medium-boiling component) requires least energy among all **distillation** processes without thermal coupling. Extension of the **dividing-wall** into the head or bottom space lets the energy demand increase. Further energy saving is only possible by thermal coupling which requires, however, expensive pressure staging. In both cases, with and without thermal coupling, the so-called preferred path, i.e. initial separation into 2 binary mixts. (both containing medium-boiling component together

with either the higher- or the lower-boiling one) and their subsequent separation in the 2nd step (the **dividing-wall column** works after this principle too), is optimal from the energetic point of view.

L12 ANSWER 9 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:260873 CAPLUS
DOCUMENT NUMBER: 140:341180
TITLE: Industrial use of **dividing-wall columns** and thermally coupled **distillation**

AUTHOR(S): Kaibel, Gerd; Miller, Christian; Stroezel, Manfred; von Watzdorf, Ruediger; Jansen, Helmut

CORPORATE SOURCE: BASF AG, Ludwigshafen, D-67056, Germany
SOURCE: Chemie Ingenieur Technik (2004), 76(3), 258, 260-263
CODEN: CITEAH; ISSN: 0009-286X

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: German

AB Constructional features, design variants, and technol. advantages of **dividing-wall** and thermally coupled **distillation columns** are described. The basic design of a **dividing-wall column** is characterized by an internal vertical wall reaching

over a certain distance from below to above the level of the feeding site. This allows to obtain 3 or even 4 fractions from a sole column by arranging 1 or 2 lateral discharge sites in addition to top and bottom discharge. Energy savings result from the absence of any mixing entropy on the feeding tray. However, great temperature spreading may require high columns. This temperature spreading is decreased by using thermally coupled columns (owing to different pressures in the individual columns), while the advantage of the absence of mixing entropy at the site of feeding is maintained. There are 4 variants of arranging 2 thermally coupled columns.

L12 ANSWER 10 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 2004:3345 CAPLUS
DOCUMENT NUMBER: 140:61315
TITLE: Distillation process for separating 1-methoxy-2-propanol and 2-methoxy-1-propanol from propylene oxide-production wastewater
INVENTOR(S): Hofen, Willi; Gebirke, Helmut; Kolbe, Barbel; Wilken, Dieter; Gehlen, Carsten; Kampels, Percy
PATENT ASSIGNEE(S): Germany
SOURCE: U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE
US 2004000473 A1 20040101 US 2003-463780 20030617
PRIORITY APPL. INFO.: US 2002-383696P 20020620
AB A process for separating 1-methoxy-2-propanol and 2-methoxy-1-propanol from propylene oxide-production wastewater, comprises: (a) dewatering of the aqueous composition containing 1-methoxy-2-propanol and 2-methoxy-1-propanol to a concentration of 1-methoxy-2-propanol and 2-methoxy-1-propanol of 29% in total; and (b) isolation of 1-methoxy-2-propanol and/or 2-methoxy-1-propanol or their mixts. from the product of step (a) by means of distillation process flow diagrams are presented.

L12 ANSWER 11 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 2004:2825 CAPLUS
DOCUMENT NUMBER: 140:61313
TITLE: Distillation process for separating 1-methoxy-2-propanol and 2-methoxy-1-propanol from propylene oxide-production wastewater
INVENTOR(S): Hofen, Willi; Gebirke, Helmut; Kolbe, Barbel; Wilken, Dieter; Gehlen, Carsten; Kampels, Percy
PATENT ASSIGNEE(S): Degussa A.-G., Germany; Unice G.m.b.H.
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXOZ
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE
WO 2004000773 A1 20031231 WO 2003-EP6522 20030620
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GR, GU, HK, HR, HU, ID, IL, IN, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MM, MO, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, ST, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZW, ZM, ZN

RW: GH, GM, KE, LS, MM, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RO, RU, TR, AT, BE, BG, CH, CI, CZ, DE, DK, EE, ES, FI, FR, GB, GR, GU, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, GM, GA, GN, GO, GT, MR, NE, SN, TD, TG
EP 1375462 A1 20040102 EP 2002-13677 20020620
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, IT, LV, FI, RO, MK, CY, AT, TR
AU 2003249854 AU 2003-249854 20030620
AU 2003249854 AU 2003-249854 A 20020620
PRIORITY APPL. INFO.: WO 2003-EP6522 W 20030620
AB A process for separating 1-methoxy-2-propanol and 2-methoxy-1-propanol from propylene oxide-production wastewater, comprises: (a) dewatering of the aqueous composition containing 1-methoxy-2-propanol and 2-methoxy-1-propanol to a concentration of 1-methoxy-2-propanol and 2-methoxy-1-propanol of 29% in total; and (b) isolation of 1-methoxy-2-propanol and/or 2-methoxy-1-propanol or their mixts. from the product of step (a) by means of distillation
REFERENCE COUNT: 3
THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 12 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 2003:348696 CAPLUS
DOCUMENT NUMBER: 138:340271
TITLE: Dividing wall fractionation column
INVENTOR(S): Steacy, Paul C.
PATENT ASSIGNEE(S): UOP LLC, USA
SOURCE: U.S. Pat. Appl., 7 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE
US 655815 B1 20030506 US 2001-840543 20010423
PRIORITY APPL. INFO.: US 2001-840543 20010423
AB A control method and apparatus for regulating the rate of vapor flow in the two adjacent sections of a dividing wall fractional distillation column are presented. The liquid level on a tray at the top of each section is used to control the rate of vapor flow through the tray. The liquid level is controlled by measuring the pressure differential across the tray in each section and varying the flow of liquid to this tray in response to the differential.
REFERENCE COUNT: 14
THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 13 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN
ACCESSION NUMBER: 2003:312692 CAPLUS
DOCUMENT NUMBER: 138:323706
TITLE: Fractionation in light paraffin isomerization process for butane desorbent recovery
INVENTOR(S): Rice, Lynn H.
PATENT ASSIGNEE(S): UOP LLC, USA
SOURCE: U.S. Pat. Appl., 8 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE
US 6552242 B1 20030422 US 2001-948979 20010907

PRIORITY APPL. INFO.: US 2001-948979 20010907

AB A process for recovering high-octane, di-branched paraffins from the raffinate stream of an adsorptive separation process, comprises: (a) passing a raffinate stream removed from an adsorptive separation zone, which stream comprises a desorbent hydrocarbon, mono-branched paraffins and di-branched paraffins, into a fractional distillation column maintained at fractionation conditions, with the column having an intermediate section divided into adjoining first and second vertical fractionation chambers by a substantially flow-preventing vertical dividing wall, with the column also containing an upper first full diameter fractionation section located above the intermediate section and a lower second full diameter fractionation section located below the intermediate section; (b) recovering a first product stream rich in mono-branched paraffins from the second full-diameter fractionation section; (c) allowing vapor to pass upward from the second full-diameter fractionation section into the first vertical fractionation chamber, and allowing vapor to pass upward from the first vertical fractionation chamber into the first full-diameter fractionation section. The process continues with: (d) removing an overhead vapor stream comprising the desorbent hydrocarbon from the first full-diameter fractionation section, and recovering a second product stream comprising the desorbent hydrocarbon; (e) passing liquid comprising di-branched paraffins and the desorbent hydrocarbon (e.g., butane) downward from the first full-diameter fractionation section into the second vertical fractionation chamber; and (f) recovering a second product stream comprising di-branched paraffins from a lower portion of the second vertical fractionation chamber. A single fractionation column is employed to recover the desorbent butane, a highly branched paraffin product stream, and a mono-branched, paraffin-rich recycle stream, thus reducing the cost of the process. Process flow diagrams are presented.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 14 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:291658 CAPLUS
DOCUMENT NUMBER: 138:305955

TITLE: Economic and controllability investigation and comparison of energy-integrated distillation schemes

AUTHOR(S): Emili, M.; Mizey, P.; Rev, E.; Fonzo, Z.
CORPORATE SOURCE: Department of Chemical Engineering, Budapest University of Technology and Economics, Budapest, H-1521, Hung.

SOURCE: Chemical and Biochemical Engineering Quarterly (2003), 17(1), 31-42

PUBLISHER: CODEN: CERDEZ; ISSN: 0352-9568
Croatian Society of Chemical Engineers

LANGUAGE: English
JOURNAL

AB Five different energy-integrated distillation schemes: two direct sequences with forward or backward heat integration (DOF, DOB), the Petlyuk or dividing wall system (SP), and two sloppy separation sequences with forward or backward heat integration (SOF, SOB) are investigated for the separation of a ternary mixture from economic and controllability points of view and compared to the non-integrated conventional direct separation scheme. The economic study shows that the optimal DOB has the highest total annual cost (TAC) saving of 37%. SOF and SOB have 344 and 334 TAC savings, resp. The controllability analysis, based on steady state indexes, shows that the control loops of DOF and DOB have less interactions than in the case of the other energy-integrated schemes studied. The dynamic investigations also prove that DOF and DOB show similar controllability features than the non-integrated conventional scheme. Although the SOF and SOB have good economic features but their controllability features, especially the ones of SOB, are significantly worse than those of DOF and DOB. Therefore the controllability features should play a significant role at the selection of the energy-integrated

distillation schemes. 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 15 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:156503 CAPLUS
DOCUMENT NUMBER: 138:305938

TITLE: Distillation columns with structured packings in the next decade

AUTHOR(S): Spiegel, L.; Meier, W.
CORPORATE SOURCE: Sulzer Chemtech Ltd, Winterthur, Switz.
Chemical Engineering Research and Design (2003), 81(A1), 39-47

PUBLISHER: CODEN: CERDEZ; ISSN: 0263-8762
Institution of Chemical Engineers

LANGUAGE: English
JOURNAL

AB The anal. of the history of structured packings allows the conclusion that the innovation cycle will become faster. Based on the separation power as an alternative way to represent the performance characteristics an estimate of the next level of what might be the ultimate separation power is given. Regarding the column internals as distributors, only slight improvements are expected, typically in the form of streamlined forms and cheaper manufacturing CFD and computer tomog. as tools to better understand the complicated two-phase flow processes in distillation equipment will be of great importance for the development of new designs. A general trend is the emerging of multifunctional packings and their application in combined systems, like catalytic distillation or dividing wall column.

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 16 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:889228 CAPLUS
DOCUMENT NUMBER: 137:371732

TITLE: Integrated fractional distillation for an adsorptive separation process

INVENTOR(S): O'Brien, Dennis E.
PATENT ASSIGNEE(S): UOP LLC, USA

SOURCE: U.S., 9 PP.

DOCUMENT TYPE: Patent
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION: CODEN: USXXAM

LANGUAGE: English

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6483002	B1	20021119	US 2000-670159	20000926
US 6407303	B1	20020618	US 2000-710627	20001110
			US 2000-670159	A2 20000926

AB Construction and operational costs of simulated moving bed adsorptive separation process units are reduced by recovering the desorbent from both the extract and raffinate streams of the process in a single column (e.g., in the desorbent, which is removed at one end of a dividing wall column, while sep. extract and raffinate products are removed from the other end of the column).

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 17 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:878304 CAPLUS
DOCUMENT NUMBER: 137:386624

TITLE: Process synthesis and design in industrial practice

AUTHOR(S):
CORPORATE SOURCE:
SOURCE:

Kalbel, Gerd
BASF AG, Ludwigshafen, 67056, Germany
Computer-Aided Chemical Engineering (2002),
10(Eurochem Symposium on Computer Aided Process
Engineering-12, 2002), 9-22
CODEN: CACEFH
Elsevier Science B.V.
Journal
English

PUBLISHER:
DOCUMENT TYPE:
LANGUAGE:

AB This contribution demonstrates how a large chemical company, BASF, carries out process synthesis and process design in practice. First of all, the synthesis of a chemical process has to be included in the company's process chain, and the phys. and chemical properties of at least the main components and their mixts. have to be known. It is then possible to formulate possible alternative solns. for the specific process. This can be done in two different ways: using a knowledge-based method with heuristic rules or using a method based on thermodyn., often accompanied by special math. procedures (MINLP). The process synthesis phase is followed by a process design phase. Suggestions must be validated by means of economic comparison. Suitable tools for process synthesis and design include CAPE tools; suitable tools for validation include manipulants. This is demonstrated by using several non-standard processes as examples. The synthesis and design of **dividing wall** columns and of reactive **distns.** is described. Mention will be made of the limitations of the procedure are discussed remarks are made of future research needs and combined fluid-solid processes and hybrid processes.

REFERENCE COUNT: 40
THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 18 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER:
DOCUMENT NUMBER:

2002:578128 CAPLUS
137:187516

Approximate design of fully thermally coupled

TITLE:

distillation columns

AUTHOR(S):
CORPORATE SOURCE:
SOURCE:

Kim, Young Han; Nakaiwa, Masaru; Hwang, Kyu Suk
Dept. of Chem. Eng., Dong-A University, Pusan,
604-714, S. Korea
Korean Journal of Chemical Engineering (2002), 19(3),
383-390
CODEN: KJCHE6; ISSN: 0256-1115
Korean Institute of Chemical Engineers
Journal
English

PUBLISHER:
DOCUMENT TYPE:

LANGUAGE:

AB An approx. design procedure for fully thermally coupled **distillation** columns (FTCCs) is proposed and exemplified on ternary systems. The procedure gives a fast solution for preliminary study of the FTCC. The structural information resolves the design difficulty, caused from the interlinking streams of the column, which is encountered when a conventional design procedure is implemented. The design outcome explains that how the thermodyn. efficiency of the FTCC is higher than that of a conventional two-column system and how the system of a sep. prefractionator is different from a **dividing wall** structure. From the design result of three example systems with three different feed compns., the useful performance of the proposed scheme is proved. In addition, the structural design of the FTCC gives better understanding of the system and leads to high efficiency design of the column.

REFERENCE COUNT: 31

THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 19 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER:
DOCUMENT NUMBER:
TITLE:

2002:516705 CAPLUS
137:80632
Alkylaromatic process with removal of aromatic
byproducts using efficient **distillation**

INVENTOR(S):
PATENT ASSIGNEE(S):
SOURCE:

Stewart, Douglas G.; O'Brien, Dennis E.
UOP LLC, USA
U.S., 22 pp.
CODEN: USXXAM
Patent
English

DOCUMENT TYPE:
FAMILY ACC. NUM. COUNT:
PATENT INFORMATION:

1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

US 6417420

B1

20020709

US 2001-193260

20010226

US 6762334

B1

20040713

US 2002-192680

20020709

PRIORITY APPL. INFO.:

US 2001-193260

A1

20010226

AB Alkylarom. hydrocarbons are made by alkylating aromatic hydrocarbons with olefinic hydrocarbons. The olefinic hydrocarbons are produced by dehydrogenation of paraffinic hydrocarbons. Aromatic byproducts formed in dehydrogenation are removed using an aromatic byproducts removal zone and either a **dividing wall distillation** column or thermally coupled **distillation** columns. The process significantly decreases the cost of utilities in producing alkylaroms., such as precursors for detergent manufacture. The process needs only one reboiler with a duty of 9.3 MBTU/h (2.7 MW), vs. two reboilers having a combined duty of 18.1 MBTU/h (5.3 MW) of the com. process, despite the fact that the 2 streams circulate about 24% more benzene. The process not only eliminates a column including its reboiler but also decreases the reboiler energy requirements by 49%.

REFERENCE COUNT: 12

THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 20 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER:
DOCUMENT NUMBER:

2002:461320 CAPLUS
137:34779

Isomerization process with adsorptive separation and

TITLE:

integrated fractional **distillation**

INVENTOR(S):
PATENT ASSIGNEE(S):
SOURCE:

O'Brien, Dennis E.; Rice, Lynn H.
UOP LLC, USA
U.S., 13 pp., Cont.-in-part of U.S. Ser. No. 670,159.
CODEN: USXXAM
Patent
English

DOCUMENT TYPE:
FAMILY ACC. NUM. COUNT:
PATENT INFORMATION:

2

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

US 6407303

B1

20020618

US 2000-710627

20001110

US 6483002

B1

20021119

US 2000-670159

20000826

A2

20000926

PRIORITY APPL. INFO.:

US 2000-670159

A2

2000-670159

20000926

AB Construction and operational costs of simulated moving bed adsorptive separation process units are reduced by recovering the desorbent from both the extract and raffinate streams of the process in a single integrated fraction column. Both streams are fractionated to recover the desorbent (e.g., a butane-isobutane mixture), which is removed at one end of a **dividing wall** column, while sep. extract and raffinate products are removed from the other end of the column. A specific embodiment includes the use of the integrated fractionation column in an isomerization application (i.e., the isomerization of pentane and hexane mixts.); process flow diagrams are presented.

REFERENCE COUNT: 13

THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 21 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER:
DOCUMENT NUMBER:

2002:403934 CAPLUS
136:403484

TITLE: Adsorptive separation product recovery by fractional distillation for the separation of para-xylene from meta-xylene
INVENTOR(S): Hamm, David A.
PATENT ASSIGNEE(S): UOP LLC, USA
SOURCE: U.S., 9 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION: 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6395951	B1	20020528	US 2000-669793	20000926
WO 2003051799	A1	20030626	WO 2001-US49104	20011218
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, FI, GB, GD, GE, GH, GM, GR, GU, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NI, NL, NO, NZ, OM, PA, PE, PG, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RM: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AT, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002232649	A1	20030630	AU 2002-232649	20011218
EP 1458662	A1	20040922	EP 2001-992181	20011218
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CN 1582266	A	20050216	CN 2001-823891	20011218
JP 2005511773	T2	20050428	JP 2003-552691	20011218
PRIORITY APPLN. INFO.: WO 2001-US49104			A 20010926	

AB Construction and operational costs of recovering the extract or raffinate product of a simulated moving bed adsorptive separation process units are reduced by employing a dividing wall column to perform the separation. The raffinate or extract stream is passed into the column at an intermediate point on the first side of the dividing wall, with the column delivering the adsorptive separation product as a side draw from the opposite side of the dividing wall. A stream of co-adsorbed impurity is removed as an overhead stream and desorbent is recovered as a net bottoms stream.

REFERENCE COUNT: 9
THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 22 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:374936 CAPLUS
DOCUMENT NUMBER: 136:387771
TITLE: Reduce costs with dividing-wall columns

AUTHOR(S):

Schultz, Michael A.; Stewart, Douglas G.; Harris, James M.; Rosenblum, Steven P.; Shakur, Mohammed S.; O'Brien, Dennis E.

CORPORATE SOURCE:

UOP Engineering Science Skill Center, Des Plaines, IL, 60017-5017, USA

SOURCE: Chemical Engineering Progress (2002), 98(5), 64-71

CODEN: CEPRA8; ISSN: 0360-7275

PUBLISHER: American Institute of Chemical Engineers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Dividing-wall distillation columns (DMC) are presented as a capital cost and energy saving technol. compared to conventional distillation towers. Advances in the theory of design, control and operation of a DMC contributed to a better understanding of

these columns and led to com. developments. Continuous growth of the number of applications in conventional and unconventional cases led to more experiences in this technol.

L12 ANSWER 23 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:364006 CAPLUS
DOCUMENT NUMBER: 136:371463
TITLE: Process for distillation in a column with a dividing wall of saturated hydrocarbons obtained by isomerization

INVENTOR(S): UOP LLC, USA
PATENT ASSIGNEE(S): Eur. Pat. Appl., 18 pp.
SOURCE: CODEN: EPXXDM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION: 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1205460	A1	20020515	EP 2001-309484	20011109
EP 1205460	B1	20040512		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 6395950	B1	20020528	US 2000-710721	20001110
US 6472578	B1	20021029	US 2001-947132	20010905
AT 266612	E	20040515	AT 2001-309484	20011109
EP 1205460	T	20040831	PT 2001-309484	20011109
ES 2220658	T3	20041216	ES 2001-1309484	20011109
US 2000-710721	A	20001110		

PRIORITY APPLN. INFO.:
AB Construction and operational costs of recovering the high-octane components of an isomerization raffinate product of a simulated moving bed adsorptive separation process units are reduced by employing a dividing wall column to perform the separation. The raffinate product stream is passed into the column at an intermediate point on the first side of the dividing wall, with the column delivering the low-octane raffinate components as a side draw from the opposite side of the dividing wall. A stream of higher-octane components are removed both as an overhead stream and a bottoms stream. The side draw may be recycled to the isomerization zone; process flow diagrams are presented.

REFERENCE COUNT: 1

THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 24 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:248745 CAPLUS
DOCUMENT NUMBER: 136:281321
TITLE: Development of dividing wall distillation column design space for a specified separation

AUTHOR(S):

Muralikrishna V, K.; Madhavan, K. P.; Shah, S. S. Chemical Engineering Department and Computer Aided Design Center, Indian Institute of Technology, Bombay, India

CORPORATE SOURCE:

Chemical Engineering Research and Design (2002), 80(3/2), 155-166

SOURCE: CODEN: CERDEP; ISSN: 0263-8762

PUBLISHER: Institution of Chemical Engineers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The dividing wall distillation column has a larger number of design variables than a conventional column. For design of the column, it will be desirable to define a priori the feasible space over which all the designs lie. An attempt was made in this paper to address

this problem through a graphical representation of all the possible **dividing wall** column (DMC) designs for a specified separation of a ternary feed. The development of the theory is based on splitting the **dividing wall** column into three simple columns (a prefractionator and two downstream columns) and applying the shortcut methods of Fenske, Underwood, Gilliland and Kirkbride. For specified ternary product comps., the design space can be constructed on a 3-dimensional plot, the axes being the flow rates of two of the components in the "net distillate" from the prefractionator (**dividing wall** column being representable as a Petlyuk system), and the effective reflux ratio of the prefractionator. For ease of graphical representation, the designs will be projected on to a 2 dimensional space of prefractionator output flow rate variables for a fixed prefractionator reflux ratio. Constraints related to the availability of feed components to downstream columns, infeasible reflux ratio and imbalance in plate assignment on either side of the wall are also placed on the 2 dimensional design space to generate a feasible design space. On this design space, developed by various constraints, various equi-parameter curves are drawn depicting locus of points on which the chosen parameter has a constant value. The parameter chosen can be either the total number of column plates or the number of plates above/below the **dividing wall**, and the reboiler duty, or the cost. The design space proposed even though it uses the shortcut methods, provides the designer with a broad view of what all designs are available, out of which some attractive options may be explored further. The location of equi-cost or equi-energy curves assist the designer in identifying design changes which could lead to either decreased cost or decreased energy.

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 25 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2002:66715 CAPLUS
 DOCUMENT NUMBER: 136:120571
 TITLE: Distillation device for hydrogenation, etherification and reactive distillation
 INVENTOR(S): Hill, Thomas; Kappel, Gerd; Meyer, Gerald; Niekerken, Joerg; Schoenmakers, Hartmut
 PATENT ASSIGNEE(S): Basf A.-G., Germany
 SOURCE: Ger. Offen., 14 pp.
 CODEN: GMMXXE
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10033958	A1	20020124	DE 2000-10033958	20000713
PRIORITY APPL. INFO:				
AB	The distillation device is configured either as a dividing-wall column or as a system of thermally coupled distillation columns provided with following segments (1) a highest range of the general arrangement, (2) an enriching zone of the inlet unit, (3) a top of the withdrawal unit, (4) a stripping zone of the inlet unit, (5) a lower part of the withdrawal unit, and (6) a lowest range of the general arrangement. An inlet for hydrocarbons mixts. especially olefins is placed between the segments 2 and 4. A withdrawal of the medium boiler fraction is arranged between the segments 3 and 5. The highest segment 1 is provided with a withdrawal of the low boiler fraction and the lowest segment is provided with a withdrawal of the high boiler fraction. ALC. for the etherification is fed to the segments 1, 2, and/or 4. H2 for the hydrogenation is fed to the segments 3, 5. Heterogeneous hydrogenation catalysts containing reactive distillation components (especially thin layer etherification catalysts containing reactive distillation components are			

present in the segments 2, 4. Isobutene-containing hydrocarbon mixture was etherified with i-BuOH and hydrogenated with H2 to give i-Bu tertarybutyl ether which is separated into the high boiler fraction.

L12 ANSWER 26 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2002:41539 CAPLUS
 DOCUMENT NUMBER: 136:185954
 TITLE: Structural design and operation of a fully thermally coupled distillation column
 AUTHOR(S): Kim, Young Han
 CORPORATE SOURCE: Department of Chemical Engineering, Dong-A University, Sana-gu, Pusan, 604-714, S. Korea
 SOURCE: Chemical Engineering Journal (Amsterdam, Netherlands) (2002), 85(2-3), 289-301
 CODEN: CHEJAH; ISSN: 1385-8947
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB A rigorous structural design procedure for fully thermally coupled distillation columns (FPCDC) is applied to the example system of butanol isomers to show the design performance. The procedure gives structural information of the column, and therefore iterative computation encountered in the design using conventional procedure and com. packages can be eliminated. Using the outcome of the structural design, other topics, such as thermodyn. efficiency, **dividing wall** column structure and the arrangement of interlinking streams, are investigated. Finally, a 3+3 operation scheme, which has favorable indexes of multivariable controllability, is examined by checking the control performances of set-point tracking and regulation with a model predictive control.

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 27 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:895906 CAPLUS
 DOCUMENT NUMBER: 136:120410
 TITLE: Azeotropic distillation process with vertical divided-wall column
 AUTHOR(S): Midori, Shinzo; Zheng, Shuang Ning; Yamada, Ikuho
 CORPORATE SOURCE: Yokkaichi Factory, Kyowa Yuka Co., Ltd., Yokkaichi, 510-0022, Japan
 SOURCE: Kagaku Kagaku Ronbunshu (2001), 27(6), 756-760
 CODEN: KKRBAW; ISSN: 0386-216X
 PUBLISHER: Kagaku Kagakai
 DOCUMENT TYPE: Journal
 LANGUAGE: Japanese
 AB In order to sep. a homogeneous binary azeotropic mixture, such as ethanol and water, into individual components, an entrainer is usually added to form a new heterogeneous ternary azeotropic mixture. An azeotropic distillation method with the conventional two-column sequence is usually used to complete the separation task. In this paper, we present a new azeotropic distillation column with a vertical **dividing wall**, developed by improving the divided wall column for ordinary three component mixture separation as reported by R. O. Wright and N. J. Elizabeth (1949). The new system differs greatly from the conventional two-column sequence. In this system, the column is equipped with one condenser at the top and two reboilers at the bottom, allowing single-column azeotropic distillation. The features of this column are demonstrated by simulation for ethanol denaturation using cyclohexane as entrainer in comparison with the conventional two-column system. It is confirmed that for denaturation of a 90% ethanol feed stock, an energy saving of approx. 7% can be expected.

L12 ANSWER 28 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:849490 CAPLUS

DOCUMENT NUMBER: 136:87701
TITLE: Design and optimization of fully thermally coupled distillation columns. Part 2: application of dividing wall columns in retrofit

AUTHOR(S): Aminudhin, K. A.; Smith, R.
CORPORATE SOURCE: Department of Process Integration, UMIST, Manchester, UK
SOURCE: Chemical Engineering Research and Design (2001), 79(A7), 716-724
CODEN: CERDEE; ISSN: 0263-8762

PUBLISHER: Institution of Chemical Engineers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB This paper addresses the application of dividing wall columns in retrofit. It emphasizes the need to take maximum advantage of the existing hardware with min. capital outlay. Based on this study, several practical issues associated with the application of the dividing wall column in retrofit were identified and as a result, its thermodynamically equivalent arrangements, such as the prefractionator arrangement and the Petyuk column, are often recommended instead. A case study involving the improvement of energy efficiency and capacity expansion of the NGL separation train was illustrated to demonstrate the anal. involved.

REFERENCE COUNT: 16
THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 29 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:849489 CAPLUS
DOCUMENT NUMBER: 136:87700
TITLE: Design and optimization of fully thermally coupled distillation columns. Part 1: preliminary design and optimization methodology

AUTHOR(S): Aminudhin, K. A.; Smith, R.; Thong, D. Y.-C.; Towler, G. P.
CORPORATE SOURCE: Department of Process Integration, UMIST, Manchester, UK
SOURCE: Chemical Engineering Research and Design (2001), 79(A7), 701-715
CODEN: CERDEE; ISSN: 0263-8762

PUBLISHER: Institution of Chemical Engineers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The design of a fully thermally coupled distillation column, or its thermodynamically equivalent arrangement, the dividing wall distillation column, is more complex than conventional arrangements because of the greater number of degrees of freedom. All of these degrees of freedom must be initialized before rigorous simulation can be performed. The distribution of stages in the various sections of the column, the reflux ratio, vapor and liquid splits on either side of the fully thermally coupled columns and feed condition must all be initialized. Yet these are important degrees of freedom that all interact with each other in the design. A new approach to the design of fully thermally coupled columns is proposed in this paper. The procedure uses the equilibrium stage composition concept developed for the design of azeotropic distillation systems.

The method is semi-rigorous in nature, providing an initial design that is close to the results of rigorous simulation. The approach then allows the degrees of freedom to be optimized simultaneously and an optimized initial design established for rigorous simulation. A case study was used to demonstrate the application of the new method.

REFERENCE COUNT: 40
THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 30 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:153451 CAPLUS

DOCUMENT NUMBER: 134:209860
TITLE: Rigorous design of fully thermally coupled distillation column

AUTHOR(S): Kim, Young Han
CORPORATE SOURCE: Department of Chemical Engineering, Dong-A University, Pusan, 604-714, S. Korea
SOURCE: Journal of Chemical Engineering of Japan (2001), 34(2), 236-243
CODEN: JCEJGQ; ISSN: 0021-9592

PUBLISHER: Society of Chemical Engineers, Japan
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A rigorous design procedure for a fully thermally coupled distillation column is proposed and applied to an example system of butanol isomer ternary mixture. The design procedure is composed of the calcn. of limiting requirements and a rigorous simulation using material and energy balances. The result of the proposed design is compared with the design of a conventional two-column system. It is found that the fully thermally coupled distillation requires less investment and energy cost than conventional distillation, even if higher reboiler temperature is required. It is also pointed out that the dividing wall structure gives less efficient performance than the Petyuk column having a smaller number of trays of a prefractionator than that of the mid-section of a main column.

REFERENCE COUNT: 14
THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 31 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:416565 CAPLUS
DOCUMENT NUMBER: 131:46468
TITLE: Optimal operation of Petyuk distillation: steady-state behavior

AUTHOR(S): Halvorsen, Ivar J.; Skogestad, Sigurd
CORPORATE SOURCE: Department of Chemical Engineering, Norwegian University of Science and Technology, Trondheim, 7489, Norway
SOURCE: Journal of Process Control (1999), 9(5), 407-424
CODEN: JPCOCO; ISSN: 0959-1524

PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The "Petyuk" or "dividing-wall" or "fully thermally coupled" distillation column is an interesting alternative to the conventional cascaded binary columns for separation of multi-component mixts. However, the industrial use has been limited, and difficulties in operation have been reported as one reason. With three product compns. controlled, the system has two degrees of freedom left for online optimization. The steady-state optimal solution surface is quite narrow, and depends strongly on disturbances and design parameters. Thus it seems difficult to achieve the potential energy savings compared to conventional approaches without a good control strategy. Candidate variables which may be used as feedback variables in order to keep the column operation close to optimal in a "self-optimizing" control scheme is discussed.

REFERENCE COUNT: 9
THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 32 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:786592 CAPLUS
DOCUMENT NUMBER: 130:40276
TITLE: Optimal Design of Thermally Coupled Distillation Columns

AUTHOR(S): Duennbier, Guido; Panellides, Constantinos C.
CORPORATE SOURCE: Centre for Process Systems Engineering, Imperial College of Science Technology and Medicine, London, SW7 2BY, UK

SOURCE: Industrial & Engineering Chemistry Research (1999), 38(1), 162-176
CODEN: IECRED; ISSN: 0888-5885

PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB This paper considers the optimal design of thermally coupled distillation columns and dividing wall columns using detailed column models and math. optimization. The column model used is capable of describing both conventional and thermally coupled columns, which allows comparisons of different structural alternatives to be made. Possible savings in both operating and capital costs of up to 30% are illustrated using two case studies.

REFERENCE COUNT: 31
RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L12 ANSWER 33 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:272699 CAPLUS
DOCUMENT NUMBER: 128:272164
TITLE: Operation and control of dividing wall distillation columns. Part 1: degrees of freedom and dynamic simulation

AUTHOR(S): Metaltz, M. I.; Abdul, Smit, R.
CORPORATE SOURCE: Department of Process Integration, UMIST, Manchester, UK

SOURCE: Chemical Engineering Research and Design (1998), 76(A3), 308-318
CODEN: CERDEE; ISSN: 0263-8762
Institution of Chemical Engineers
Journal
LANGUAGE: English

AB The dividing wall distillation column was known now for some 50 yr. Despite its potential to make major savings in energy and capital costs in distillation, it has not been widely used in practice. One of the major fears in applying the technology is uncertainty regarding the control and operation of the arrangement. This paper investigates the control and operation of the dividing wall column. A degrees of freedom anal. was performed to determine the number of control loops required. Possible control configurations were then investigated using Relative Gain Array Anal. and dynamic simulation. The results of these theor. studies indicate that simple control schemes are capable of providing stable control.

REFERENCE COUNT: 25
RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L12 ANSWER 34 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:746932 CAPLUS
DOCUMENT NUMBER: 128:5095
TITLE: Partitioned Petlyuk arrangement for quaternary separations

AUTHOR(S): Christiansen, Atle C.; Skogestad, Sigurd; Lien, Kristian
CORPORATE SOURCE: Dept. of Chem. Eng., Norwegian Univ. of Science and Technology, Trondheim, N-7034, Norway
Institution of Chemical Engineers Symposium Series (1997), 142(Distillation and Absorption '97, Vol. 2), 745-756
CODEN: ICESPB; ISSN: 0307-0492
Institution of Chemical Engineers
Journal
LANGUAGE: English

PUBLISHER: Institution of Chemical Engineers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The task of providing energy efficient separation arrangements have received considerable attention in the literature. The conventional approach to increasing the process efficiency subscribe to integrating conventional distillation arrangements (indirect coupling). Instead, there has

recently been a growing interest in the development of new-configurations (unit operations) that offer both operational (energy) and capital savings. Among these the Petlyuk or dividing wall columns (direct coupling) is found. In this paper, the energy consumption is compared in optimized Petlyuk arrangements with that of optimized sequences of regular columns. The results are based on simulation using a detailed model. A novel column arrangement is introduced by utilizing both direct and indirect coupling, for which the use of a horizontal partition is proposed in order to avoid remixing of already separated components.

REFERENCE COUNT: 15
RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L12 ANSWER 35 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:736293 CAPLUS
DOCUMENT NUMBER: 128:14414
TITLE: Column with movable vertical dividing wall for continuous distillation

INVENTOR(S): separation of multicomponent mixtures

PATENT ASSIGNMENT(S): Kaijbel, Gerd; Stroezel, Manfred; Rheude, Udo
SOURCE: BASF A.-G., Germany
Ger. Offen., 6 pp.
CODEN: GWXXBX
Patent
German

DOCUMENT TYPE: Patent
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION: German

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19617210	A1	19971106	DE 1996-19617210	19960430
US 5914012	A	19990622	US 1997-845226	19970421
EP 804951	A2	19971105	EP 1997-106627	19970422
EP 804951	A3	19980408		
EP 804951	B1	20020911		
ES 2183038	T3	20030316	ES 1997-106627	19970422
CA 2203821	AA	19971030	CA 1997-2203821	19970425
JP 10033901	C	20050405		
CN 1177513	A2	19980210	JP 1997-112555	19970430
CN 1073866	A	19980401	CN 1997-113020	19970430
	B	20011031		

PRIORITY APPL. INFO.:
AB A distillation column for separation of 23 fractions contains 21 movable vertical dividing wall(s). The thickness of the dividing wall is 0.1-3 mm compared to 5-10 mm for the conventional rigid dividing wall. A dividing wall section is either attached on 1 side to a column packing layer or not attached. The non-attached side(s) is (are) provided with strip-type spring spacers. The dividing wall section exceeds the packing layer thickness by 1-10 mm and forms a roof-like structure. Preferably, operation of the columns with the dividing wall is arranged so that pressure at the outlet side is greater or equal compared to that at the inlet side.

L12 ANSWER 36 OF 44 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:370846 CAPLUS
DOCUMENT NUMBER: 127:52630
TITLE: Optimizing control of Petlyuk distillation:

AUTHOR(S): understanding the steady-state behavior
CORPORATE SOURCE: Halvorsen, Ivar J.; Skogestad, Sigurd
Department of Chemical Engineering, Norwegian University of Science and Technology, Trondheim, 7034, Norway
Computers & Chemical Engineering (1997), 21(Suppl.,

Joint 6th International Symposium on Process Systems Engineering and 30th European Symposium on Computer Aided Process Engineering, 1997), S249-S254
CODEN: CCENDW; ISSN: 0098-1354
Elsevier
Journal

PUBLISHER:
DOCUMENT TYPE:

AB The "Petlyuk" or "dividing-wall" or "fully thermally

coupled" distillation column is an interesting alternative to the conventional cascaded binary columns for separation of multi-component mixts. The industrial use has been very limited, and difficulties in control has been reported as one reason. Since there are more manipulated variables than controlled variables, the column is a candidate for online optimization. It is shown that the steady-state optimal solution surface is quite narrow, and depend strongly on disturbances and design parameters. Thus it seems difficult to achieve the potential energy savings compared to traditional approaches without a good control strategy.

REFERENCE COUNT: 5

THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 37 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER: 1997:370759 CAPLUS

DOCUMENT NUMBER:

127:32628
Complex distillation arrangements: extending the Petlyuk ideas

TITLE:

Complex distillation arrangements: extending the Petlyuk ideas

AUTHOR(S):

Christiansen, Atle C.; Skogestad, Sigurd; Lien, Kristian

CORPORATE SOURCE:

SOURCE:

Department Chemical Engineering, Norwegian University Science Technology, Trondheim, N-7034, Norway
Computers & Chemical Engineering (1997), 21(Suppl.), Joint 6th International Symposium on Process Systems Engineering and 30th European Symposium on Computer Aided Process Engineering, 1997), S237-S242
CODEN: CCENDW; ISSN: 0098-1354
Elsevier
Journal

PUBLISHER:

DOCUMENT TYPE:

AB

The task of separating a multicomponent mixture into streams enriched in the resp. constituents is commonly carried out in conventional distn . columns arranged in series. However, due to the scrutiny of tighter requirements for energy and cost efficiency, current research aims at alternative column arrangements that offer savings in both operational (energy) and capital costs. Among these are the Petlyuk or "dividing wall" column, in which three components are separated in a single shell using only one reboiler and one condenser. In this paper the Petlyuk ideas are extended to seps. of four components, although extensions to more components is straightforward. A general definition is provided of Petlyuk arrangements and discuss alternative structures from the literature. Following this overview the arrangements are considered which allows for implementation in a single shell using "dividing walls" or vertical partitions.

REFERENCE COUNT: 15

THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 38 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER: 1994:512238 CAPLUS

DOCUMENT NUMBER:

121:112238
The design and optimization of dividing wall distillation columns

TITLE:

The design and optimization of dividing wall distillation columns

AUTHOR(S):

Triantafyllou, C.; Smith, R.

Centre for Process Integration, UMIST, Manchester, UK
Energy Effic. Process Technol., (Proc. Int. Conf.) (1993), Meeting Date 1992, 351-60. Editor(s): Pilavachi, Petros A. Elsevier: London, UK.

CODEN: 60FPAC

DOCUMENT TYPE:

Conference
English

AB For most seps. fully thermally coupled distillation columns require significantly less energy than conventional arrangements. This paper describes a design model which provides a basis for investigating the degrees of freedom to minimize the energy consumption. The optimization of fully thermally coupled columns is also discussed.

L12 ANSWER 39 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER: 1992:410538 CAPLUS

DOCUMENT NUMBER:

117:10538
The design and optimization of fully thermally coupled distillation columns

TITLE:

The design and optimization of fully thermally coupled distillation columns

AUTHOR(S):

Triantafyllou, C.; Smith, R.

Cent. Process Integr., UMIST, Manchester, UK
Chemical Engineering Research and Design (1992), 70(A2), 118-32

CODEN: CERDEE; ISSN: 0263-8762

DOCUMENT TYPE:

Journal
English

AB For most seps., fully thermally coupled distillation columns are thermodynamically more efficient than conventional arrangements. A design model was presented which provides a basis for investigating the degrees of freedom to minimize the energy consumption or the number of plates. Optimization procedures are presented. The "dividing wall" column achieved energy savings of full thermal coupling together with capital savings from the use of a single shell, single reboiler, and single condenser, except in extreme cases.

L12 ANSWER 40 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER: 1986:481349 CAPLUS

DOCUMENT NUMBER:

105:81349
Distillation column with helicoidal circulation of liquid

TITLE:

Distillation column with helicoidal circulation of liquid

INVENTOR(S):

Gourla, Jean Paul; Neel, Laurent; Ptak, Christian; Rondeur, Daniel

PATENT ASSIGNEE(S):

Societe Nationale Elf Aquitaine (SNEA), Fr.

SOURCE:

Belg., 14 pp.
CODEN: BEXXAL

DOCUMENT TYPE:

Patent
French

FAMILY ACC. NUM. COUNT:

PATENT INFORMATION:

1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
BE 904202	A1	19860529	BE 1986-216245	19860210
FR 2577147	A1	19860814	FR 1985-1874	19850211
EP 192539	A1	19860827	EP 1986-400234	19860204
EP 192539	B1	19881102		
R: DE, GB, NL				
DK 8600632	A	19860812	DK 1986-632	19860210
DK 163108	B	19920120		
DK 163108	C	19920609		
NO 8600469	A	19860812	NO 1986-469	19860210
NO 165481	B	19901112		
NO 165481	C	19910220		

PRIORITY APPL. INFO.:

AB The cylindrical column is subdivided into a series of semicircular plates, and each plate has a "dividing wall" with openings at the top or bottom, alternately, to allow free passage of the materials. The gas and vapors circulate cross-currently and describe helicoidal pathways from one plate to the next. The circulating gases do not intermix, thus providing a better separation

L12 ANSWER 41 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN
 ACCESSION NUMBER: 1971:55562 CAPLUS
 DOCUMENT NUMBER: 74:53562
 TITLE: Distilling column with infinitely variable reflux ratio
 INVENTOR(S): Gelderblom, Horst D.; Morsdorf, Manfred
 PATENT ASSIGNEE(S): Chemiebau Dr. A. Zieren G.m.b.H. und Co., K.-G.
 SOURCE: Ger. Offen., 15 pp.
 CODEN: GWMXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1933056	A	19710114	DE 1969-1933056	19690630
DE 1933056	C3	19730726		
NL 7008892	A	19710104	NL 1970-8892	19700617
FR 2051295	A5	19710402	FR 1970-23532	19700625
GB 1304735	A	19730131	GB 1970-31358	19700629
US 3670769	A	19720620	US 1970-51295	19700630
			DE 1969-1933056	19690630

PRIORITY APPL. INFO.: A distilling column with infinitely variable reflux ratio is described. It is equipped with a cylindrical casing with a **dividing wall** movable axially to subdivide the intake.

L12 ANSWER 42 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN
 ACCESSION NUMBER: 1967:116924 CAPLUS
 DOCUMENT NUMBER: 66:116924
 TITLE: Separation of fatty acids from fats by steam distillation
 INVENTOR(S): Baron, Lorenzo
 PATENT ASSIGNEE(S): Fratelli Gianazza Societa Accomandita Semplice
 SOURCE: Ger., 3 pp.
 CODEN: GWMXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1236112		19670309	DE 1961-G32557	19610622

AB The apparatus consists of 1 or more **distillation** elements free of coils but with sep. coils arranged within an evacuated vessel. The **distillation** elements may be arranged vertically one over the other. These elements are heated vessels with **dividing walls** so that they form 1 continuous channel in the element through which the fat feed flows. In these elements, a small perforated tube carrying steam for treatment of the fatty feed is placed. The **distillation** elements may also be a perpendicular countercurrent **distillation** column containing a series of slanted baffles or a column packing, such as Raschig rings. The liquid fat is drawn off at the top of the column and the steam is drawn off at the bottom. The **distillation** elements may also be tilted at an angle to the perpendicular in the evacuated vessel. There are slanted baffles over which the liquid fat passes and under which the steam tubes are placed.

L12 ANSWER 43 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN
 ACCESSION NUMBER: 1925:22142 CAPLUS
 DOCUMENT NUMBER: 19:22142
 ORIGINAL REFERENCE NO.: 19:2877e
 TITLE: Apparatus for heating hydrocarbon oils to effect

fractional **distillation**
 INVENTOR(S): Wilson, W. E.; Wilson, H. W.
 DOCUMENT TYPE: Patent
 LANGUAGE: Unavailable
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 1546055		19250714	US 1922-533445	19220201

AB The apparatus comprises a series of compartments communicating near their bottoms through openings in the **dividing walls**. Each of the compartments has a vapor outlet and oil maintained at a constant level is successively heated to higher temps. in the different compartments.

L12 ANSWER 44 OF 44 CAPLUS COPYRIGHT 2006 ACS ON STN
 ACCESSION NUMBER: 1917:17138 CAPLUS
 DOCUMENT NUMBER: 11:17138
 ORIGINAL REFERENCE NO.: 11:3423a-b
 TITLE: Gas mixture containing **distillation** gas and water gas
 INVENTOR(S): Dolensky, E.
 DOCUMENT TYPE: Patent
 LANGUAGE: Unavailable
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CH 75143		19170601	CH	

AB In the manufacture of **distillation** and water gas by an intermittent process from bituminous fuel, by the alternate introduction of air (heating period) and of a steam-air mixture or steam (gas period), the production of the gas is effected in a generator containing in its upper portion, coal, and in its lower portion, comprising two sep. canal shafts, containing only coke. During the heating period, the lower portion of the coal charge is blown hot with air traversing the column just above the **dividing wall** between the two lower columns of coke, so that the hottest zone is directly beneath the column of coal, and that during the gas period the gases generated in the lower portion of the column are drawn through the coal.

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COST IN U.S. DOLLARS	ENTRY	SESSION
FULL ESTIMATED COST	276.00	283.31
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FILE 'REGISTRY' ENTERED AT 09:34:28 ON 10 APR 2006
L1 1 S TEDA/CN

FILE 'CAPLUS' ENTERED AT 09:34:41 ON 10 APR 2006
L2 5385 S L1
L3 0 S L2 AND DIVIDING WALL
L4 1 S L2 AND COLUMN AND WALL
L5 380 S DIVIDING WALL OR DMC
L6 44 S L5 AND PUR?
L7 3 S L6 AND POLY?
L8 41 S L6 NOT L7
L9 54 S DIVIDING WALL AND DISTILLATION
L10 0 S L9 AND TEDA
L11 0 S L9 AND TRIETHYL?

L12 44 S L9 NOT L8

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